

**TONS OF
TIPS**
FOR YOUR
MACHINE
see pages:
16-27,30,
32-33,
50-51

Issue 139 • 6th July 1991 • 88p

WEEKLY COMPUTER EXPRESS

FIRST NEWS • FIRST REVIEWS • BEST BUYS • YOUR WEEKLY GUIDE

AMIGA



DPAINT 4

Exclusive preview
of the state of art

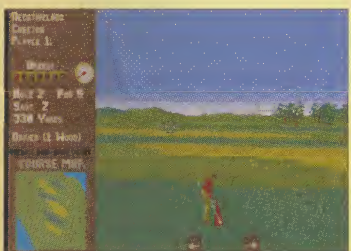
PC & ST



VIRTUALITY!

Domark's 3D
Construction Kit

GAMES



FORE-PLAY!

Golf Challenge is here

TOMORROW'S COMPUTERS...



- Keyboard?
- Disk drive?
- Monitor!?

Machines like
these don't
need 'em!

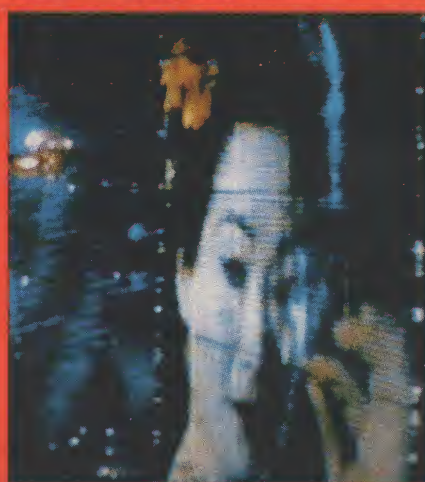
TURN TO PAGES 6&7
TO FIND OUT WHY!

PLUS: COMPUTER CRIME

Viruses **IN**: Hacking **OUT** – Millions **LOST**

WHAT WILL THEY THINK OF NEXT?

Giant holograms in
orbit, that's what! p55



future
PUBLISHING
Your guarantee of value

Frontend

itendFrontendFrontendF

It's a jungle out there, but never fear - Frontend is here with all the wild and wacky lowdown on what's hot, what's not and what doesn't bear thinking about



• CDTV takes a sing along approach to entertainment with karaoke.

Pub singers can now warble away in the comfort of their own homes with the release of a series of karaoke disks for Commodore's CDTV.

A huge selection of bar-room classics is available, with words and graphics displayed on-screen to help those of a lyrical

SING ALONG WITH CDTV

disposition to sing along.

Some 39 disks, each containing around 18 classic tracks, are available at approximately £38 each. Songs include such indispensable offerings as *Kung Fu Fighting*, *Ebony and Ivory*, *DIVORCE*, and of course that favourite 'last orders' reverie, *New York, New York*.

And if that little lot hasn't got

your larynx lusty for song, two special Christmas disks are set for release featuring a host of yuletide songs.

The titles are published by Japanese (where else?) firm Arbiter and Commodore's Andrew Ball said: "I'm sure they'll be a winner for those pre-disposed to a good singalong around Christmas. ■



• Do spiders make your blood curdle? Therapy administered by your home computer could solve all that.

Micro medic for Little Miss Muffet

Digitised images of spiders can help people overcome fear of the long-legged beasts, claim researchers at Leeds University.

By using images ranging from spidery shapes to 3D models the university's Spider Phobia Project hopes to cure severe arachnophobia.

The exposure builds up to an introduction to real spiders and doctors reckon the treatment could eventually be conducted on a home micro, CD-I or CDTV. Researcher Dr Peter Ward says: "We've found from a number of surveys that roughly half of people with spider-phobia prefer to confide to a computer than a person." ■

BOMBER BUST

A computer programmer has been arrested for allegedly trying to create a job for himself by planting a 'logic bomb' in a military rocket's computer.

American Michael Lauffenburger was arraigned on charges of attempted computer fraud after he allegedly planted the bomb in a General Dynamics Atlas rocket.

It is alleged that Lauffenburger's scheme was to plant the bomb, allow it to destroy data and thus ensure that US military hardware giant General Dynamics would keep him on at a substantial salary as a consultant to find out exactly what had gone wrong.

Lauffenburger was originally employed by General Dynamics to write programs that tracked the availability and the cost of parts used in the manufacture of Atlas rockets. He quit his job in March to go into business as a consultant. "Four days before his resignation, Lauffenburger created a computer program, he called 'Cleanup' which, upon its execution, would have deleted the

parts database, deleted another set of programs used to respond to government requests for information and then deleted itself without a trace," says Assistant United States Attorney Mitchell Dembin.

It is alleged that the logic bomb was set to go off on May 24, right at the start of a public holiday weekend, but another programmer discovered the sabotage on April 10 and

"successfully removed it from the system. ■



PSYCHO PASSWORD PROBE REPORT

The password you use to access your computer could provide an important key to your character, psychologists have found.

Passwords such as 'Rambo' and 'Tarzan' give away possible insecurity, while the name of a loved one indicates security and contentment. And for all those smart alecs who use the password 'password', it is the most commonly used and psychologists say it can indicate a rather dull person.

Dr Guy Fielding of Bournemouth Polytechnic, who has completed a study of

the passwords that people choose, says: "It's very private, so people reveal things about themselves that in public they normally wouldn't dare."

Other common passwords include swear words, which are reckoned to indicate sexual frustration, and numbers which supposedly reveal a much more practical attitude.

• What is your computer password? Tell us and Dr Clare Anthony, resident Express psychologist, will give you an insight into your hidden frustrations and secret desires.

Send your secret password to New Computer Express, 30 Monmouth Street, Bath BA1 2BW, all in strictest confidence of course. ■

Krafty remix

Top Teutonic techno-rockers Kraftwerk are back on the road to promote an album of digi-remixed hits.

The album, titled *The Mix*, features such classics as *Computerlove* and *Trans Europe Express*. UK tour dates are: Barrowlands, Glasgow July 11, Apollo Theatre, Manchester July 12, Liverpool Royal Court Theatre July 13, Hummingbird, Birmingham July 15, City Hall, Sheffield July 16, Playhouse Theatre, Edinburgh July 17 and Brixton Academy on 19 and 20 July.



• Kraftwerk go robo on their latest tour.

Tennis tout racket rumbled

Ticket touts aiming to clean up at Wimbledon this year are in for disappointment thanks to a computerised ticket monitoring scheme.

In previous years, people have bucked the system by applying for tickets in the public ballot and then selling them for a profit to a tout.

But this year the application form stipulates that tickets are non-transferable, so if someone turns up with a suspect ticket, officials can consult their computer to find out who should really be holding it.

The original owner of the ticket is also blacklisted from future ballots.

The All England Club, which stages the Wimbledon tennis championships, instigated the crackdown after increasing numbers of touts were noticed clustering around the venue and after receiving complaints about the number of seats taken up by people who had bought black-market tickets. ■



• Now even punters can improve their service at Wimbledon with the new ticket tout crackdown.

Friendly spiders • Touts trounced • Apples fine on art • bgi

ATTACK OF THE YUPPIE GAMERS

Computer gamers are not spotty-faced teenagers as commonly believed, but largely aged thirty-something and earn more than £30,000 a year.

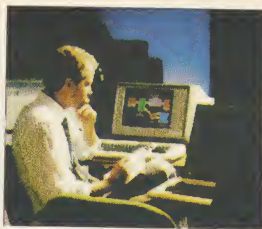
So claims research firm NDL, which this week published figures turning the preconceptions of many on their head.

The firm's analysis of 213,000 people covering usage of a range of home computers, but not consoles, reveals that those in the 18-44-year-old age

bracket show the most interest in games.

However, interest tends to drop right off after people reach the age of 45.

The vast majority are high wage earners and most are married, with kids aged between five and 15. And, surprisingly, while most enthusiasts are male, NDL says the sex difference is just not significant enough to make it a significant characteristic. As for the other interests of these well-resourced joystick



• *Stuff the spreadsheet, let's kill some aliens. It looks like the super-annuated stockbroker is more of a games freak than his offspring.*

wagglers, they enjoy completing crosswords, science fiction and new technology.

Interestingly enough, they are not in the slightest bit interested in gardening or religion.

COMPUTER CALAMITIES

CHIP BARONS

The size of computer chip thefts in California is rivaling the multi million dollar narcotics trade problem, according to San Jose police hi-tech crimes unit. "It has all the elements of drug crimes too," says SJPD Sgt Jim McMahn.

Computers. Can't live with 'em, can't live without 'em. Okay, they're very useful things, but often they're at the centre of a howling cock-up. If you hear any tales of magnificent malfunctions, send them to Computer Calamities, New Computer Express, 30 Monmouth Street, Bath BA1 2BW and we'll pay a fiver for each one printed. This week our digital disaster takes us to France, where staff at a school walked out after receiving their pay slip. Why? New software installed in the wages computer had shifted all the decimal points two characters to the left. ■

A touch of the Mac classics

Multimedia techniques are to be used by the National Gallery, London, this summer to help people interact with its massive collection of western European paintings.

A powerful bank of twelve Apple Macintosh IIfx computers, each with 8Mb of memory and 1.3-gigabyte hard drive, will form the Micro Gallery, enabling visitors to browse through more than 2,000 paintings, plus supporting text, by simply touching an Ellinor Accutouch screen.

The Micro Gallery, sponsored by the American Express Foundation, aims to make the National's collection readily available to both scholars and the general public while preserving the paintings themselves, which suffer when conventionally displayed.

The software behind the project was developed by Cognitive Applications and is based on Apple's Hypercard 2.0, augmented by software written in lightspeed C. Display is via 19-inch Radius colour monitors and users can print out text or pictures on Laser Writers for a take-away record.

Enhanced 8-bit graphic images, more than a million words of text and even animated sequences are all available and the system can be entered at any one of four sections - artists, picture types, historical atlas or general reference. ■



• *Get your hands on a virtual masterpiece at the National Gallery's interactive Micro Gallery this summer.*

SHOOT FROM THE LIP

'Do let me know if you want review copies or if there are any other incentives I can offer to give the old PCW a plug. And if you ring up to tell me that your PCW already has a plug, I'll come and let your tyres down. And if you don't have a car, so much the better. Yours from a padded cell, boing...'

Nik Holmes of Creative Technology (Micro design) Ltd proving in a letter to Express that PCWs don't crash if you inject a sense of humour.

'A Little Pink Fluffy Dream.'

TV fave rave presenter Jonathan Ross describing the Kodak Diconix M150 printer, which isn't really very pink at all.

'I know I'm good and I know I'm the best but no fast talking leisure software publisher is going to entice me back to the land of the Virtual Paycheck. I'm staying with spreadsheets and networks where you can kick the money not imagine it.'

Jay Feideck IV, Californian former games programmer no longer living on a diet of promises.

'A representative from each application will be available so you can pick and choose to deal with only those of interest.'

Gayle Bryant in a press shot from Multimedia 91 implying that uninteresting people won't be allowed to talk to you.

CONTENTS

6th July 1991 • Express 139

COVER FEATURE



Pointing the way to the future

NCR's 3125 PC understands

handwriting - so is

the writing on the wall for today's computers? - pages 6&7

REVIEWS

3D Construction Kit

Domark's 'virtual world builder' is out now for the PC, ST & Amiga. Is it the ultimate escapist fantasy? - page 49



Leading the way with LED

Oki's LED printer is a cheap alternative to lasers. So is it worth buying one? - page 53

EVERY WEEK

News

All the top stories - pages 4-8

What's New

Teletext adaptors, security locks, 386 notebooks, digital address books - all the newest of the new - see page 11



Games Week

Hot tips, news, and the latest charts, plus Golf Challenge - page 50

Win a £1,200 Acer laser

It's neat, it's fast and it could be yours for free! Turn to page 58 now

SHOPPING EXPRESS

Letters	13	Whole Wired	
Amiga	16	World	30
ST	18	Circuit City	31
CPC	19	Tech Tips	32
C64	21	Programming	40
Spectrum	23	On-line	42
PC	24	Event Horizon	45
Mac	26	PD Column	46

Deluxe Paint 4 out soon

Of all the Amiga's programs, the Deluxe Paint series from Electronic Arts has been one of the most successful. The latest incarnation of this range, Deluxe Paint 4, is to be released in September and must be one of the most eagerly awaited releases, ever. In fact, Simon Jefferies, spokesman for Electronic Arts, expects that within a year Deluxe Paint 4 will be one of the company's largest revenue earners.

It improves over its predecessors in several important ways. One of the biggest enhancements is the inclusion of Hold And Modify (HAM) mode painting for the first time, which gives access to the Amiga's 4,096 colours at once. Now Amiga artists don't have to use other paint programs to access this mode, and makes Deluxe Paint a real all-rounder and something for its competition to worry about.

Not only is HAM mode available, but HAM pictures can also be animated. Animation as a whole has been expanded and now features a control panel that works in a similar way to a video recorder: playing, fast forwarding and rewinding between frames. Compression techniques have been incorporated to

save memory; essential with HAM mode because of all the colours involved.

Another new tool is the Lightbox feature, which displays animation frames over each other so changes between frames can be seen, making animation much easier.

Other added features include a metamorph function, which can transform brushes over each other and generate the animation frames between them; and anti-aliasing which smooths out the jagged parts of lines and curves.

In spite of all these improvements, the updated program will still be familiar to Deluxe Paint users. The same screen layout is used and the icons on screen remain essentially the same. All the added features have been incorporated in the program's familiar menus.

Deluxe Paint IV is to sell for £89.95. Owners of older versions need not feel left out though, as a complete upgrade path will be offered. Upgrading to the new version will cost £45 for owners of DPaint III, £55 for DPaint II and £65 to for DPaint I owners.



• HAM animations are now possible with Deluxe Paint 4

While the program will no doubt be one of the Amiga's hottest titles, Electronic Arts believes it is so complex that a manual is essential, so pirates of the program will lose out. Future upgrades of Deluxe Paint look slim since Electronic Arts feels the program is so complete. Deluxe Paint IV, then, is expected to have an indefinite lifetime.

For information on this landmark release, contact Electronic Arts on 0753 49442.

3D graphics spreadsheet

Now spreadsheet work can look exciting with 3D Calc for the ST, from Microdeal.

3D Calc is a three-dimensional spreadsheet with an integrated editor, programming language, graphics and extended statistical functions. Features include three spreadsheets in memory at once, an integrated 3D programming language, various graphing options and extended database functions. There's also comprehensive statistical analysis and a cut-down version to work with 512K computers, as well as import/export options, including support for Lotus and ASCII files.

3D Calc will work on all STs and is available now for £29.95. Microdeal on 0726 69692. ■

Poquet buy out

Fujitsu has purchased 85 per cent of Poquet Computer in California costing £22.7million.

The Japanese firm first purchased stock in 1988. Fujitsu has already developed two versions of pocket computers: a notebook-type PC, the FMR Card; and the Oasys Pocket which weighs only 530g (1.16 pounds). ■

Japanese manufacturer announces September UK launch

NEO GEO OFFICIAL

Japanese arcade manufacturer SNK's Neo Geo, available from grey importers for over a year, is now to be officially released in the UK at the Consumer Electronics Show (CES) in September.

In hardware terms the console is very advanced, equipped with both 68000 and Z80 processors, a palette of 65,535 colours (with 4,096 on screen at any one time) and a stereo, 15-way sound chip. This puts it at the forefront of technology, but until recently the price has reflected this to an extreme.

Before now, distributors De Gale Marketing (DGM), imported a limited number of PAL machines during the year, but has now decided to release it on a nationwide basis.

The price of the Neo Geo has recently been cut from £450 to £299 in time for the launch. Even with this reduction, it is still at the top-range of the console market. This doesn't worry Luther de Gale, MD of DGM, who is targeting the machine at 'peo-

ple who want the best in console technology and software'.

Software for the machine is also pricey at £99 to £149, but De Gale believes the sheer quality of the software will speak for itself. SNK, he says, has the second biggest research facility in Japan in terms of arcade development, and at any one time there are always 15-20 titles in development. These are titles of all kinds, but they will not be licensed from other companies.

With only 10 games available at the moment, this number is expected to reach 20 by the end of the year. DGM will also operate a scheme whereby software can be rented or leased. This means that Neo Geo owners can test a game before they buy it.

One unique feature of DGM's marketing will be its exchange scheme, where cartridges bought or leased can be exchanged for others available, the money paid used as part-payment for any software being bought. De Gale sees Neo Geo owners ending up owning the



• Neo Geo - sleek black hardware destined to become an executive toy?

software that they want, and not being permanently stranded with a £25 disk - as they would with 16-bit computers - which they couldn't exchange.

DGM will sell and support the console itself, in much the same way it has done in the past. Distribution of the machine will be through more upmarket outlets only, such as Harrods, Selfridges and Debenhams, as the console is being targeted at a niche market. Luther de Gale

also sees the Neo Geo being sold in 'executive geared outlets' where it could also be perceived as an executive toy.

Whether this limited marketing approach will be a success is unknown. There is no question of whether the hardware and software is good enough; the problem could be whether there are enough people who will pay out for the most expensive machine in town, even if they do get a real arcade machine. ■

Ami Pro with added extras

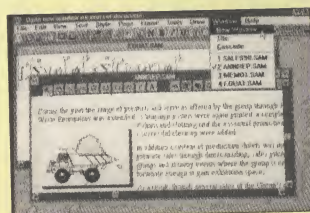
Fans of the popular Ami Pro will be pleased to hear that Ami Pro Release 2.0 will be available towards the end of the year.

Considerably upgraded, it provides extensive new word processing capabilities, support for work groups and integrates with the Lotus range of Windows products.

Features include an outliner, power fields, master documents and a scientific equation editor. Features that make the program easier to use, such as an interactive ruler, status bar and colour palette and SmartIcons, a customisable icon

palette that provides access to features with a single click on the mouse button, have also been added.

Ami Pro 2.0 has an enhanced macro language that enables users to create automated documents and sophisticated applications that involve other Windows programs. Power Fields are commands that are directly typed into a document and enable it to perform a task automatically. For example, a business letter can request the input of a name, look up the address from another file and place the name and



• Ami Pro Release 2.0 for the PC-upgraded and easier to use.

address on the page. Documents of virtually any size are supported, limited only by available disk space.

Contact Lotus on 0784 455445. ■

Norton opens Windows

Symnatec is releasing The Norton Desktop For Windows which consists of file management tools and utilities for Windows users.

What the package does is combine easy-to-use file management tools on the Windows desktop with Symnatec's own advanced data protection technology tools, designed to safeguard data and improve productivity. It enhances Windows 3.0 by providing, the company believes, the only integrated environment needed to manage and protect data within the Windows operating system.

Available in August, The Norton Desktop For Windows, will cost £99 from Symnatec UK, 0628 776343. ■

Companies lose millions says report published by Audit Commission

VIRUS ATTACKS UP BUT HACKING DOWN

Computer virus attacks have dramatically increased, yet hacking has reduced in the past three years, according to a report published by the Audit Commission.

The survey, covering 1,553 organisations between 1988 and 1990, found that a growing number of private and public-sector organisations have been victims of computer fraud and theft, costing them millions of pounds. Many of the crimes were only discovered by chance.

Computer virus attacks account for about 30 per cent of offences and computer hacking, the unauthorised accessing of a data base by an employee or an outsider using the telephone lines, have fallen.

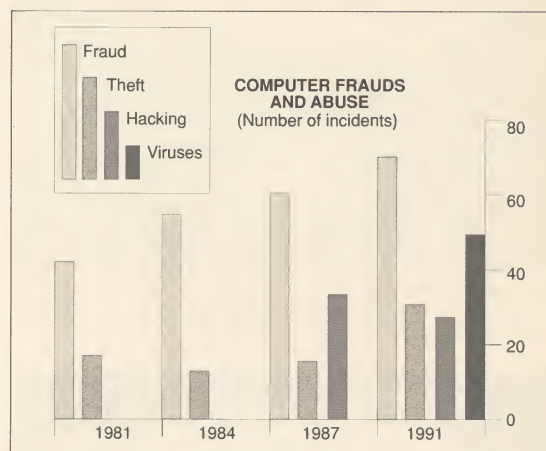
Computer fraud, including making payments to a fictitious account, has also increased, rising from 61 to 73 cases (of the 180 reported) since 1987. Local governments were the hardest hit, reporting 46 cases of fraud, but financial institutions, manufacturing and health service computers didn't escape either – the majority have been victims of computer fraud and abuse. Also badly hit by fraud is central government, computing services, communications, transport and the public utilities.

The average loss through fraud was £17,080, but five unnamed companies each reported losses of more than £50,000, while two others lost more than £100,000 each. Total

losses added up to more than a million pounds.

Of the 180 cases reported, 27 acts of theft – including data and software theft, using pirated software and the illicit use of computer systems for private work – affect companies. Many of these happen because of poor controls or safeguards.

However, the findings of the report are only the ones which get detected. Less than a quarter of the reported incidents were caught by internal controls – a considerable drop from the 31 per cent detected by internal controls in 1987 – and 60 per cent were discovered by accident. Many cases, the report acknowledged, remain undetected or undisclosed.



• Virus attacks now account for over 30 per cent of computer crime

Assembler revamped

ST owners who want to assemble Z80 code, D&S Software's Z80 Cross Assembler for the ST has had two important new features added, while being reduced in price to £49.95.

Now command strings from the assembler can be sent directly to EPROM programmers via the RS232 file transfer facility. This creates and sends an ASCII text file with the necessary start-up codes and also gives the option of sending a header file beforehand, if needed.

Conditional assembly is also supported by the assembler. Four directives have been added which can force the assembly of subsequent lines to be turned on or off, allowing the programmer to write comprehensive source code that can cover many conditions.

These can also help with debugging, since lines can be turned on by conditionally assembling them into the program and when the program is working properly they get turned off.

Z80 Cross Assembler is available for £49.95 from D&S Software on 0908 615104. ■

More power for low-cost Macs

Low-cost needn't mean low power, because owners of two low-cost Macintoshes, the SE/30 and the IIfx, can now increase the performance of their machines beyond that of their more upmarket stablemates.

The TokaMac SX accelerator card from Fusion Data Systems will increase performance well beyond the levels of the IIfx, Apple's fastest Macintosh, as well as 486-based PCs, the company claims.

Performance improvements are achieved with floating point intensive applications, which may be up to 300 per cent faster than the Macintosh IIfx. Graphics and desktop publishing applications can also run faster, reaching speeds of up to 185 per cent over the IIfx.

"We produced a blazing fast and reliable upgrade solution which puts those users at the front of today's Macintosh performance curve", said Fusion's president, Andrew Donoho.

According to the company, the TokaMac SX is the only Motorola 68040 accelerator available for the Macintosh SE/30 and the IIfx, and the only accelerator compatible with System 7.0. It is also compatible with most Mac applications. TokaMac SX has a suggested list price of \$2,995 (£1,837) plus \$50 (£30) for an OS30 PDS adaptor card.

Available in July, further details can be gleaned from Fusion Data Systems on 010 512-338-5326. ■

Acorn carries on educating

Acorn continues its monopoly of the educational marketplace, with Acorn computers being used in 90 per cent of all primary and secondary schools.

During the second half of 1990, 74 per cent of all schools buying computers bought Acorn products compared with its nearest competitor which achieved a 24 per cent market penetration in the same period, according to a survey published by Taylor Nelson, the independent market survey organisation.

A quarter of all schools have BBC A3000 computers com-



• The A3000 – now the largest selling machines to schools.

pared with eight per cent a year ago. Currently sales of this machine are running at twice the number of the next most popular schools computer from Research Machines.

Chris Humphries, Acorn's Education Marketing Manager, said: "The most pleasing informa-

tion from these figures is that the BBC A3000 is now the largest selling machine to schools. In less than two years since its launch, the A3000 now accounts for virtually a third of all schools purchases, and its rate of purchase is growing at over 100 per cent a year." ■

Colour up your PC

PC users who want to include true-to-life grey scale or colour photos and images in their publications, Publisher's Paintbrush Version 2.0 for Windows has been released by ZSoft Corporation.

Suitable for both novice and professional desktop publishers, the package provides tools for creating artwork, controlling scanners, retouching and applying special effects to scanned images, and for adding high quality type to graphic images.

One special feature is the ability to be compatible with virtually any PC, thanks to its extensive hardware and software compatibility and complete device independence. ZSoft has included all its usual paint tools and also supports gradient fills, a tiling feature for creating special effects, and tools for intricate texture patterns.

The company has recognised that the success of computer based image processing depends on achieving realistic output easily. To this end, Publisher's Paintbrush offers 'complete device compensation' to correct calibration between the input device (a scanner, for example), the monitor and the output device (such as a printer). ■

As NCR's pen-based notepad, the 3125, sets the standard for the future

THE WRITE STUFF PO

GRiD, Toshiba, Psion, Atari, Kyocera, IBM, Lotus, Apple, NCR, Sony and Tandy. Some of the biggest names in the personal computer market. While they may vehemently disagree over which is the best machine you, the user, can buy, there is one thing they all agree on. By the end of the decade you, and millions like you, will be the proud owner of a computer that has no keyboard, no monitor and no disk drive. Yes, pen input systems are here and NCR's exciting 3125PC is the newest of the new...

The first 386-based pen input computer to hit the market will also be the first notepad machine to support both Microsoft Windows For Pens and Go Corporation's PenPoint.

According to its manufacturer NCR, the 3125 Notepad will be the machine to popularise pen-input technology and demystify

computers for the technophobic masses.

"If you know how to write a telephone number in a pocket directory, jot down the time and place of a meeting on a calendar or fill out a form, you know how to begin using this computer," says Alasdair Macgregor, NCR's UK marketing manager.

HANDWRITING READER

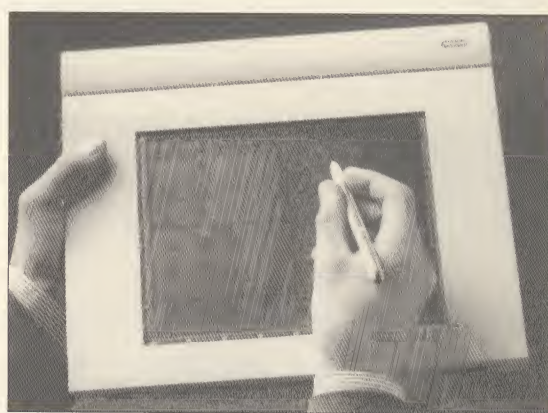
The NCR 3125 is a portable 386 which uses a cordless pen to input data. One of its most advanced features is that it actually recognises handwriting as opposed to simply using touch sensitive icons as with most previous pen input systems. It can recognise both upper and lower case letters and even adapts to individual writing styles.

The 3125 will receive a major marketing boost from the fact that it will be the first notepad to run the two major operating systems developed specifically for pen input devices.

Microsoft has announced that Windows For Pens will be available before the end of the year. A modified version of the popular Graphics User Interface (GUI) system for standard PCs which use keyboards, Windows For Pens, will make Windows available to pen-input users. As well adapting existing Windows applications, it will also allow for new applications that take advantage of pen-input devices' facility to interpret written commands.

WINDOWS FOR PENS

Go Corporation's PenPoint, which is due for release towards the end of the year, will also be supported by the 3125. It is a completely new operating system, specifically written for pen



• The 3125 also offers the first commercial implementation of a pen-based Windows 3. Microsoft is known to be keen to further distance itself from the IBM platform so when Big Blue eventually gets round to releasing its own pen-input machine in 1992 or 1993 don't expect to see a version of Windows running on it.

input devices. Whereas Windows For Pens is suitable for people who already have some knowledge of working with computers, PenPoint is geared towards people who are new to computers.

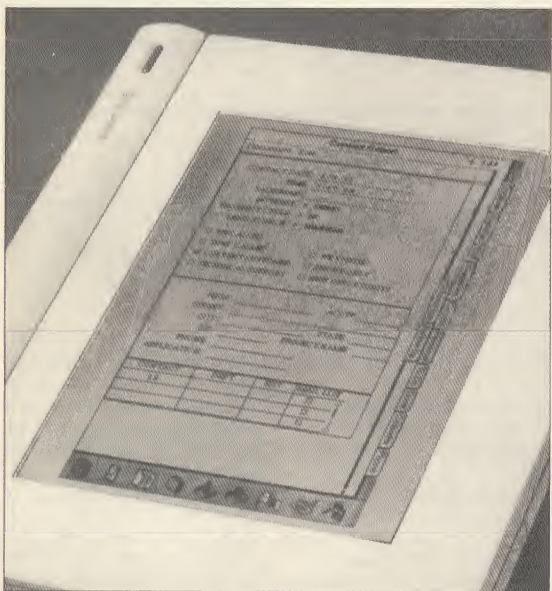
"We recognised that this new class of computer required a fresh software approach to realise its true potential," reckons Go chairman S Jerrold Kaplan.

PenPoint features a simple to use front end which Go has termed a Notebook User Interface (NUI) which, the com-

pany claims, makes the system easy to learn. It does away with concepts such as 'running an application' and 'front end', putting in their place a notebook-like arrangement; you turn the pages using the pen, and each 'page' can contain a number of applications running concurrently.

So, for example, a page of word processing can have a block embedded in it which contains a drawing program or a simple spreadsheet.

NCR will be offering people who buy the 3125 a choice of



• The NCR 3125 features a fast 20MHz 386SX processor and is fully PC compatible. However the unit's most innovative feature is its Filofax style interface which can be written to just like a diary

THE NCR 3125's STATE-OF-THE-ART SPECIFICATIONS

Aside from its innovative operating system the NCR 3125 is also a powerful 386SX portable:

- Based on an Intel 80386SX microprocessor.
- 20MHz processing speed.
- 16Kb of cache memory.
- 2Mb or 4Mb of RAM with 80ns access time.
- 512K EPROM including: 128Kb Sytem/VGA BIOS.
- MS DOS 5.0 kernel.
- Character recognition software.
- Keyboard/mouse emulator.
- 9.8-inch 640x480 resolution VGA mono LCD screen supporting 16 grey shades.
- IC option card and slot.
- Interface adaptor including: one 800x600

- VGA interface, one parallel interface, one serial interface, one full sized PS/2 keyboard interface.
- Fast charge Nickel Cadmium battery pack.
- AC power adaptor.
- Cordless digitiser pen.
- Non-volatile flash erasable programmable ROM (EEPROM) memory for protection against data loss.
- Costs £3,195.

OPTIONAL FEATURES

- 4Mb DRAM expansion.
- 2Mb or 4Mb EPROM expansion.
- Docking Station, including: 3.5" 1.44Mb floppy disk drive.

- Choice of 30Mb, 60Mb or 120Mb removable hard disk.
- one 800x600 resolution VGA connector.
- one parallel interface.
- one serial interface.
- one PS/2 keyboard.
- one IC card expansion slot.
- Fax/Data Modem IC card and software.
- Fax: 9600bps (V29), Data: 2400bps (V22bis).

OPTIONAL KEYBOARD

- Workstation: 102 total keys.
- 12 function keys.

OPTIONAL VIDEO DISPLAYS

- Standard features:

- 80 characters by 25 lines.
- 640x350 EGA graphic mode
- 720x400 VGA text mode
- 640x480 VGA graphic mode
- Graphics capability

OPERATING SYSTEM ENVIRONMENTS

- DOS for Pen Computing
- Microsoft Windows For Pen Computing
- GO PenPoint

PHYSICAL DIMENSIONS

- Height: 25.7mm
- Width: 248mm
- Depth: 297mm
- Weight: 1.35kg (1.81kg with battery and hard disk)

e, Express assesses the benefits of stylus systems

INTS THE WAY...

HOW PEN-INPUT SYSTEMS WORK

Pen input systems work via the interaction of a stylus or lightpen with a pressure-sensitive, electromagnetic or laser grid generated across the surface of a screen. This enables the operating system to detect its position and whether it's making contact.

Handwriting recognition is a much more complex process. A typical system can occupy as little as 100K of code and process about three characters a second, but the success of the system depends on

a large number of variables, each of which have to be 'learnt'.

Any handwriting translation (H W X) system also requires a spelling dictionary and the ability to distinguish between characters that overlap and touch, are of mixed size and case and include numbers and punctuation. Any system requires some familiarisation with the person using it. Accuracy rates of over 90 per cent are not uncommon, but four out of five words is the average.

Their disadvantage, though, is that with current technology, they'll always make the same mistakes no matter how long you use them - you rather than the program must change your handwriting to suit them if you wish to increase the accuracy rate. This is because HWXs have to compare written word shapes with stored templates or prototypes. The PenPoint system is innovative in this respect though as it allows you to build a number of your own prototypes.

either Windows For Pens or PenPoint to be bundled with the package. Both operating systems are compatible with existing PC systems so that files and data inputted into the Notepad can be downloaded to standard PCs. Until they have been officially released, the NCR 3125 will be made available with a much more basic system called Pen DOS, which only allows for very simple applications.

If you know how to fill in a form, you know how to begin using this computer

"For users in the field, for users who find a keyboard an impediment to data input, for users struggling with time consuming paperbound procedures, the NCR 3125 offers a revolutionary cost effective solution"

says Michael Kelville, director of product marketing at NCR.

Perhaps the machine's most innovative feature though is the Filofax style interface which runs under PenPoint. This Notebook User Interface emulates the pages of a diary or jotting pad.

Notes are always live text and can be added to at any time and in any way the writer wishes. The only difference is the physical nature of the screen and paper - the former scrolls where the latter needs to be turned.

With the NUI, a user can flip between pages and always return to the point at which the page was last visited. The notion of opening a document, scrolling to the end, adding some more data and saving it, is out of place here. It's now an anachronism. With the current state-of-the-art you have hundreds or thousands of pages which appear to be running simultaneously.

An automatically generated contents page precedes the pages grouped under any sub-ject area and you can create sections of groups of pages that

can act as chapters. These reside as page labels on the edge of the display which can be 'touched' to be activated. In this sense the data is being organised along the lines of files within folders, except that rather than opening a new document into an application, one has to turn a page to affect the function.

Frequently used notebooks can be put in a bookshelf area to be taken off and opened as desired. Up to 100 pages of mixed text and graphics data are available at any one time. ■

ACTIVE GETS IN
ON PEN-INPUT
DISTRIBUTION DEAL

A UK-developed pen-input computer with a claimed battery life of up to 12 hours is on the verge of a major distribution deal.

Active Book Company, run by ex-Acorn founder Herman Hauser, hopes to get the edge in the new pen-input market with the European announcement of its Active Book - a device that enables people to exchange files with a PC as if they had Windows running.

The computer's power consumption has been kept down by using a static design of Acorn's extremely fast and powerful ARM RISC processor, which uses only a fraction of the power of non-static designs. The chip normally runs at 20 million instructions per second (mips), but power has been scaled down to 12.5MIPS peak and 5mips average.

The operating system, called Open Book, is claimed to be able to handle hand-writing recognition, voice recording, picture recording, direct e-mail and fax link up. ■



• Atari's surprise star of the year is the ST Style, fully ST compatible, featuring a modified GEM user interface and flash memory card storage. The company is also believed to be readying disk drive versions of the machine, but neither will be available until early next year

EXPRESS COMMENT:

Pen-based computing is essential. Not only essential to users, but crucial to the well-being of the computer industry. This is the view of many market pundits, who feel this new and revolutionary way in which we interact with computers will bring salvation to a market reeling from recession, product saturation and fierce discounting.

Laptop computers are reported to be on the decline. The PC market, as revealed by Express last week, is fragmenting with no clear market leader, but activity among the heavyweights is frenetic.

An estimated \$3.5 billion carrot is the catalyst - a best estimate of the impact of pen-input computing offered by Massachusetts firm BIS Strategic Decisions.

So why the revolution? As one observer commented, pen-input will "shatter the glass ceiling" that prevents new users entering the market. And for the rest of us, it could well change the way we organise information on computer.

Keyboard-based computing has a years-old reputation for being unfriendly to the novice. Keyboards are cumbersome devices, thus not suited to convenient portability so much needed by the travelling business community. And, in the absence of formal keyboard training for the masses, many users never aspire beyond the time consuming 'two-finger' method of data input. Even mice and WIMP interfaces fail to provide the ultimate solution.

Many business people prefer to carry a Filofax rather than an electronic personal organiser, and here lies the reason for revolution.

A Filofax is a pen-input database. It is easy to use, for all of us are taught how to write with a pen. Adapt that method of input to a computer and suddenly we have friendly, truly portable and potentially market-busting PC performance.

US-based Forrester Research predicts anywhere between seven and 54 million customers for pen-based computers, prompting Forrester president George Colony to describe it as "a major thunderstorm".

But there is little calm before this storm - Toshiba, Psion, Atari, Kyocera, IBM, Microsoft, Lotus, Apple, NCR, Sony, Tandy - all the big names are reported to be hard at work and substantial investment capital is being directed at start-up operations such as Go, Slate, Pensoft, Pen Pal and Montezuma.

As with any deluge, there is bound to be turbulence and one factor could be cost. Estimates range from £1,500 to £4,500 for an effective pen-input PC. Other causes for concern are substantive handwriting recognition, for true and effortless interaction, and the high cost of colour displays.

However, as has been the case time and again in the computer industry, specification will no doubt rise in inverse proportion to price as market forces are brought to bear.

At any rate, it won't be long before PenPads dominate sales.



• The 10MHz 8086-based GridPad was the world's first laptop to offer hand-writing recognition - albeit at rather slower rate than the NCR. But Grid is expected to release a faster, colour version later this year.

PHONE A BONE

A bone-conductive, wireless voice transmission (a telephone handset), small enough to fit within the human ear, has been announced by US company Norris Communications.

The new technology combines both the microphone and the receiver on a button-size unit about the size of a hearing aid that fits inside the ear. The unit weighs only half an ounce.

Bone conductive technology sends vibrations through the ear bone structure, to transmit sound.

Two new versions of the wireless product, one a cellular version, are being prototyped, a representative from Norris Communications said.

The products are a hybrid of the bone-conductive technology developed for the National Aeronautics and Space Administration by the inventor, Elwood Norris, who is also president of Norris Communications.

Bell Atlantic, which is the parent company of seven local operating telephone companies in Mid-Atlantic states, has paid \$228,000 for a field trial of the "bone phones," Norris said.

The implications for computing may at first not appear obvious, but such devices seem an ideal adjunct to portable computer users.

Express waits with baited breath for the first announcement of a 'bone-modem' but meanwhile interested micro-phone users should contact Elwood Norris at Norris Communication on 0101 619/679-1504. ■

TOMORROW'S CUTTING EDGE

Seriously fast transputers are just a few teraflops away...

Parallel power

In the next four years, computers powerful enough to model what goes on in the human brain, or to predict climatic disasters in time to prepare for them, will be available.

Tasks such as these require such huge quantities of data to be processed that even the fastest machines currently available would need decades to finish their calculations. This time could be cut down to only a few days when machines which can perform a million million calculations a second, or a teraflop,

become available.

Parystec, a small German company, has revealed plans for its GC range of computers, the most powerful of which will operate at just under half a teraflop. This machine, the T9000 Transputer GC-5/16, will use parallel processing to achieve this speed, using just over 16,000 transputer chips.

The company is hoping to increase this power four-fold by making a few minor modifications and make it a teraflop machine by the end of 1993.

To speed up data transfer

between the processors and memory, where information usually gets slowed down, Parystec has included the "virtual channel" with the T9000. This sends information in packets, labelled with their destination, which can take any path and be rerouted if necessary.

Previously, transputers only had preset routes for sending information.

Neither the transputer or the GC computer has been tested in practice, however, and the T9000 is not to go into production until the end of this year. ■

ICOT's Multi-PSI - the fifth generation

A glimpse of what computers could be like in the future has been announced by Japan's Institute for the New Generation of Computer Technology (ICOT), the association that develops fifth generation computers and creates advanced software for parallel processors.

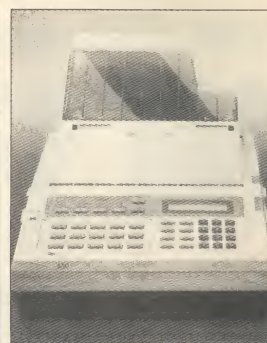
ICOT's latest developments are a variety of systems that solve

complicated problems and scientific questions. These range from a faster way of designing large-scale integrated chips, to making legal decisions by searching and comparing past judgements.

The software runs on ICOT's first version of its parallel processor, the Multi-PSI, which interconnects 64 computers to a

main computer. ICOT is also developing an advanced parallel processor which can handle data across 512 computers simultaneously.

Development of ICOT's fifth generation computer project is expected to escalate during 1991, as this is the last year of the project. ■



• Your fax machine can now do the same job as a colour laser printer or a colour photocopier.

Fascinating facsimiles

Why use a colour laser printer or a high street photorepro bureau when everything could be done on a colour fax machine?

Not only can colour faxes be sent with Sharp's FO-9000, but there are many other possibilities. By using a computer fax card, colour pages could be sent to your desktop fax, as well as to others, thus doing the same job as a colour laser printer, if not a colour photocopier.

The machine is the world's first full-colour desktop fax system which operates over normal telephone lines. It is based on a sublimating-dye printer which uses a heat-sensitive ribbon that reacts with special polyester-based paper. It takes three minutes to produce a high-quality, glossy 8-by-10 inch photograph.

This new technology doesn't come cheap though, at least for the moment, as the FO-9000 costs \$31,995 (approximately £19,630).

To learn more, Sharp can be reached on 061 2052333. ■

IS THE HARD DISK A SPECIES UNDER THREAT?

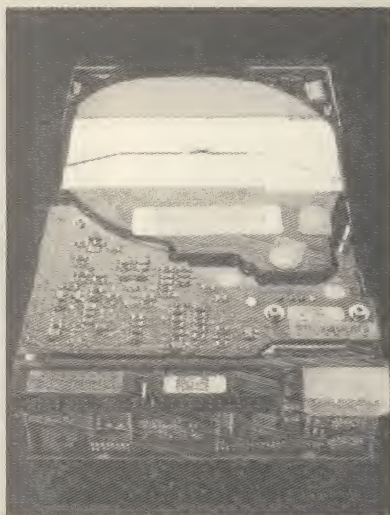
In the near future, computer users could be saving data to rewritable optical drives instead of the less capacious hard disks used today. How soon all this happens will depend on many things - price being a major consideration, but the sooner the technology becomes available, the sooner it will be used.

To aid progress, Sony has announced a pair of 3.5 inch optical disk drives that store up to 128 Megabytes of information on a 3.5 inch magneto-optical disk. The drives have been designed for PCs and Macintoshes and comply with the ANSI/ISO standard, meaning that disks can be changed with other drives meeting that standard. IBM has recently announced it will be using drives with similar specifications in its machines.

Internal and external versions of the drives are available: the internal version can be fitted into a variety of hardware, while the external model uses a SCSI-2 interface. Both drives have an average seek time of 40 milliseconds and a four-megabyte burst transfer rate.

Sony hopes to see the drives retail for below £1,000. From there it could only be a matter of time before they are as inexpensive as hard drives.

For further details, contact Sony on 0101 201-930-7812. ■



• A vision of the future? Sony has announced its optical disk drives. These SCSI devices will soon be found in forthcoming desktop machines from IBM

Upgrade gives PC users a range of options

Wouldn't it be convenient if all you had to do to improve the speed of your computer or disk drive was change a cartridge, instead of having to pull off the machine's case and keep track of hundreds of screws and cables?

Tandon's Option range of upgradeable PCs lets almost anyone upgrade the CPU or add RAM, disk and hard drives, or other peripherals. All the user needs to do is lift up the front panel of the machine and insert a cartridge in a slot - in a similar way to putting a video tape into a VCR.

The basic Option machine comes without a CPU or hard disk: these have to be purchased separately, but this gives users the flexibility to customise their system.

The range will be available in North America in July, and is

favourably priced in comparison to the company's range of standard, non-cartridge computers.

Generally, the more power, speed and storage you buy, the less you spend in comparison to the existing technology. For example, the low-end Option machine with a 16MHz 286 and 40Mb hard drive costs \$2,005 (£1,230), while Tandon's comparable non-cartridge machine retails for \$1,459 (£895).

However, an Option with a 486/33MHz CPU and 200MB hard disk sells for just over \$4,100 (£2,515) which is considerably less than the \$7,299 (£4,477) non-cartridge version.

It is not known when the range will be released elsewhere.

For more information, Tandon can be contacted on 0101 805-529-8227. ■



GENLOCKS
RENDALE 8802
£199.99
RENDALE 8806
£862.50

SPECIAL OFFER
Buy a Rendale 8802
Genlock and a switchbox
and pay only £226.99
for both

**MODE
SWITCHBOX FOR
THE RENDALE 8802**

This handy little box plugs simply into your system, to give you a hardware solution to the problem of switching between modes. You don't need software, so you save valuable memory.

Only £34.99

THE GENLOCK PEOPLE

Do you want to overlay computer graphics or titles onto your videos? If so, you will need a Genlock. Rendale Genlocks are built to a very high standard, and are used widely in the professional environment. Each of the Rendale machines offer both foreground and background modes, the 8802 is a purely composite machine, the 8806 also offers a professional RGB mix option, as well as other advanced features. Do not be fooled by cheaper versions of our Genlocks which are presently on offer, buy direct from the manufacturer or an approved supplier.

Please call for further details.

THE BIG ALTERNATIVE SCROLLER

It's new, it comes in a black folder.

Price: £49.99

It's simple to use, and it's here! The Big Alternative Scroller is now on sale. This is a self-contained titling program on one disk. The software enables you to type in credits, titles, display information etc, and scroll them either vertically or horizontally on your monitor screen and likewise onto video tape.

This program is so simple to use that you hardly get a manual, because you don't need one. Everything you could ever need is on the screen for you.

This program requires 1 megabyte of Ram.

SUPER-VHS 8802

At last, the Rendale Super-VHS 8802 is available. This high quality unit is based around the Rendale 8802, and offers additional features such as:

- Super-VHS in and out.
- Hardware controlled wipe patterns.
- Hardware controlled fade to black.
- Cross fade between Amiga and video.
- Internal mode switchbox.
- Amiga only preview facility.

£599.99

Upgrade your existing 8802 to
Super-VHS for only £420.

We will need your 8802
for approximately two days.

Please call Fiona on (0604) 790446 to arrange a
service date for your unit.

Upgrade your unit and enjoy all the benefits
of the S-VHS 8802.

**PRICES
INCLUDE
VAT &
DELIVERY**
**All our
products
carry a
12 month
warranty.**

**62 Tenter Road,
Moulton Park
Business Centre,
Northampton,
NN3 1AX,
England**
**Tel: (0604) 790466
or 081-941 6117
Fax: (0604) 647403**

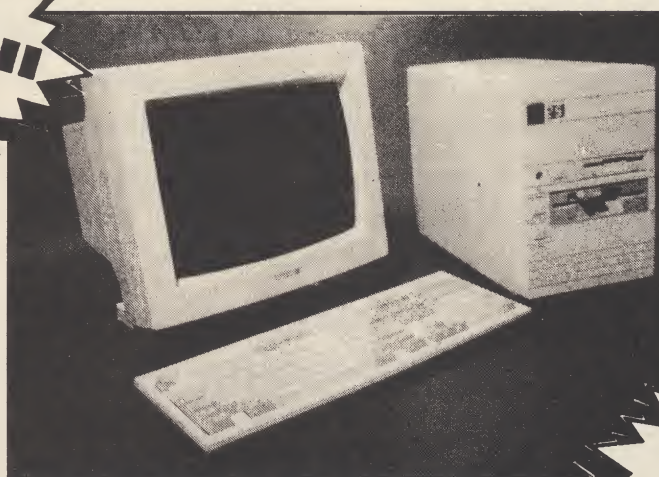
"WHAT!!! PC TOWER SYSTEMS from only £399 + VAT"

"YES!!!"

Vanitec Data
Services Ltd can
offer a complete
range of IBM
compatible
computers

from £399

+ VAT and can
include 1 years on
site maintenance
and hardware
installation by our
own engineering
team



All our systems
are fully IBM
compatible and
completely
upgradeable
throughout the
whole pc range.
phone

NOW

Vanitec
DATA SERVICES LTD



**YES!!! Vanitec Data
Services Ltd**



● **0225 782881** ●
● **0225 783221** ●

Adapting text

PRODUCT: Teletext Adaptor
NAME: OPT-III Teletext Card
COMPATIBILITY: PC

The teletext services offered by the BBC and ITV are not the most user friendly of systems. Not only do you spend ages waiting for the page you want to come up but you can't save pages, print them or view pages which are no longer being broadcast.

The OPT-III Teletext Adaptor card solves these problems. It can automatically record page updates onto the hard disk of your computer so that you can read them at your leisure.

Software provided with the card also allows you to print out the pages or save the information contained on them as ASCII files for insertion into other programs, a spreadsheet like Lotus 1-2-3 for example.

The OPT-III is a half-sized single slot PC card with a television aerial socket on the back. Simply install the card, stick in the aerial lead and you are ready to go. You do not even need a television set as it will work with a normal monitor.

Manufacturer Optimum reckons it will mainly appeal to people who want to keep track on stocks and shares as this information is constantly updated on both the Oracle and Ceefax teletext services.

Price: £195
Availability: Now
Target users: Home users and small companies dabbling in stocks and shares, universities and market research agencies
Contact: Optimum Technology: 081-203 0220
Perceived Competition: Microtext teletext adaptor.

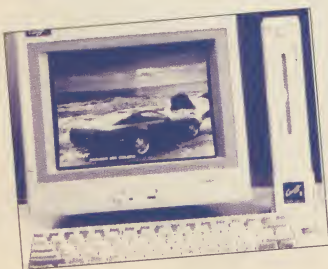
Filling a gap

PRODUCT: Book-sized 386 PC
NAME: Carry 1 9000 Series
COMPATIBILITY: PC

The Lotay Carry-1 is portable, but it is not a laptop. It's also powered from the mains so you won't see anyone tapping away at it on the train home from work.

Instead, it is aimed at people who really want to take their work home, by actually taking their office PC with them.

It offers the power of full-sized desktop 386SX in a compact, easily portable package. Its CPU is about the size of a hardback coffee table book and weighs just 2.1k. Based on a 80386SX 32-bit processor running at 16 MHz, it is available with up to 4Mb of RAM and up to an 80Mb hard disk. A 3.5 inch

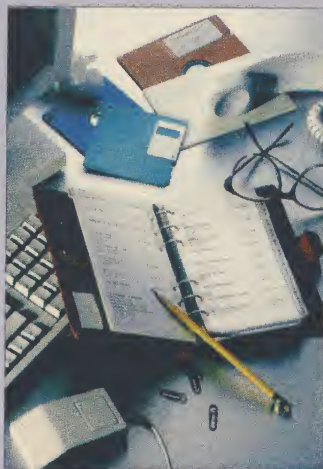


• Filling the gap between the portable and the laptop - the Lotay Carry-1.

WHAT'S NEW

Your weekly update on straight hardware and software news with no frills.

Flexible printing and indexing



• Picking up where filofaxes left off? DynoPage and Dynodex help the busy executive keep on time and up to date.

PRODUCTS: Versatile printing utility and computerised address book
NAMES: Dynopage and Dynodex
COMPATIBILITY: Macintosh

Are your business affairs in a mess, and do you have an office to match? If so, then two software packages from Computers Unlimited could be for you. Dynodex is a personal database that helps users to enter, organise, search, merge and sort names, addresses, phone numbers, notes, dates and any other information. It stores up to four phone numbers per entry, and can automatically dial them (tone or pulse) through the sound or modem port. Any selection of records can be printed by Dynodex onto double-sided Filofax and other personal organiser page formats.

Dynopage, is a printing utility that prints any Mac file to any format, including personal organiser pages, mailing

labels, index cards, thumbnail reductions or even double-sided pages. Many pre-designed templates are included, such as index cards, thumbnails, tri-fold letters, as well as a number of different page and label sizes. Calendar, expense and other diary pages have templates provided too. Users can also create custom formats for odd-sized binders, package inserts or whatever else is needed. Both packages include the software, manuals and a supply of Filofax-format pages.

Price: £99.95 each
Availability: Now
Target users: Personal database users.
Contact: Computers Unlimited: 081-200 8282
Perceived competition: Simple page, label or other printing programs; Filofax and electronic diary manufacturers.

1.44Mb floppy drive is included as standard with each model.

The package includes either a 9 inch mono VGA or 10 inch colour VGA monitor and an 81-key keyboard weighing 0.7k.

"Despite its small size the Carr-1 386 will run all the software that much larger and more expensive PCs can, including memory-hungry applications like Windows 3. We believe it will fill a gap between portables and laptops and full-blown desktop PCs," says Lotay's managing director, Indy Lotay.

Price: £895-£1,825
Availability: Now
Target users: The business market
Contact: Lotay Computers 081-961 2706

Perceived Competition: The Brick and the Tiny PC

Safe data

PRODUCT: PC software security lock
NAME: Data Sentry Lite
COMPATIBILITY: PCs

The original idea for Data Sentry Lite was inspired by the infamous news story about the RAF officer whose laptop containing military secrets was stolen from his car.

According to Robin Nyman, Accounts Manager at Rainbow Technology, the company immediately realised that there was a gap in the market for a simple to use but foolproof software security system.

The Data Sentry File is simply a hardware 'key' which fits into any PC's

parallel port. The user can allocate an area in the computer's memory which cannot be accessed unless the key is in place.

Up to four different secure areas can be designated, each being accessed by a different key. This means that four users can work on the same PC without knowing what each of the others is doing. Software such as spreadsheets and word processors can be left in an unsecured area, while personal files and data can be saved into a secure area.

Primarily aimed at laptop users, Rainbow Technologies also reckon that it is perfect for situations where more than one person will be regularly using a PC such as in schools and colleges.

Price: £60
Availability: Now
Target users: All PCs users who share machines
Contact: Rainbow Technologies Ltd: 0753 541512
Perceived Competition: None.

Notable power

PRODUCT: 386 Notebook PCs
NAME: Kamco 386SX/20MHz
Kamco 386/33MHz
COMPATIBILITY: PC

Kamco has launched into the portable market with two 'uncompromising' 386-based notebooks.

"We are genuinely providing the mobile or off-site worker with a PC to perform primary tasks at or between locations with no compromise on features," reckons the company's



• The new Kamco 386 laptops offer the full functionality of a desktop for the person on the move, according to the company.

managing director Zygi Kamasa. The Kamco 386SX/20MHz and 386/33MHz both have A4 footprints and weigh 2kg. They feature backlit Liquid Crystal Display (LCD) screens with a choice of CGA or VGA resolution, full 101-key keyboards and slots for modems, fax modems, maths coprocessors, printers and mice.

They can be either battery or mains powered.

The higher specification machine, the 386/33MHz, is a DX-based machine with 2Mb of RAM expandable to 16Mb and a 40Mb hard disk.

Price: 386SX - £1,595;
386DX - £2,295
Availability: Now
Target Users: Off-site business users
Contact: Kamco Computer Systems: 081-963 1031
Perceived Competition: Panasonic, Sharp laptops ■



Can you afford **not** to join?

THE

Amiga

PUBLIC DOMAIN

CLUB

Yes that's right, you can now get Amiga PD for an amazing 39p per disk (Free if you supply the disk), once you have joined our friendly, fast growing and extremely popular Amiga PD Club. It must surely be the Public Domain buyers dream come true!

Lifetime membership to the club costs only £19.95. Much of this, however, will go straight back into the club to provide you with an even better service. Members will be able to choose as many PD titles as they like from our detailed catalogue disks, listing many of the Classic and Latest titles. We will bring you the very best in Demos, Utilities, Music, Art, Business, Animation, Games, Slides and much more. Just send us the blank disks & return postage and we will despatch your order to you the same day. It just couldn't be easier. As an added bonus, members not wishing to supply their own disks - don't have to. We will send your order on our own high quality disks for just 39p per title. We can't say fairer than that!

Members will also enjoy many other benefits including:

- ★ Many new titles to choose from every month!
- ★ Massive discounts on other Amiga Products!
- ★ All catalogue disks are constantly updated and are available FREE!
- ★ Superb disk magazine, FREE every month. (News, Reviews, Competitions, Letters, Classifieds and much more!)
- ★ A FREE games compilation to welcome all new members! A FREE mystery gift worth £14.95!
- ★ No minimum or maximum order!
- ★ Members can even request titles that we don't have at no extra cost!

Membership is usually priced at £29.95 a year, so apply now and take full advantage of this extra special offer. Remember, you can have LIFETIME membership for an incredible £19.95! Even your first order could save you £££'s!

To become a member, simply fill out the form below and send with a Cheque/Postal Order to:

**P.A.S. Enterprises, Amiga PD Club, 3 St. Johns Walk,
St. Ives, Cornwall TR26 2JJ, England.**

Join now. We promise you will not be disappointed

**The Lowest
Priced PD
Library in
the U.K.**

Please enrol me as a member of the AMIGA PD CLUB and rush me my members pack and membership number. I enclose a Cheque/Postal Order for £19.95 payable to P.A.S. Enterprises.

Name Address

Postcode Telephone



SHOPPING EXPRESS

CONTENTS

AMIGA	16
ST	18
CPC	19
C64	21
SPECTRUM	23
PC	24
MAC	26
WHOLE WIRED WORLD	30
CIRCUIT CITY	31
TECH TIPS	32
PROGRAMMING	40
EXPRESS ON-LINE	42
THE EVENT HORIZON	45
THE PD COLUMN	46

EXPRESS MAIL

Welcome to the letters pages that take it on the chin.

Yes, this week it's a 'GET YOUR ACT TOGETHER OR ELSE...' edition with Haydn Fitz-Williams doing his best to please all of the people all of the time. So, don your helmets and flak jackets and wade into this furious war of words...

Arch cynic

Well, all the brave words from the early days are shown to be the load of balls they would always turn out to be. I refer, of course, (oh yeah, obvious really - HF-W) to the steady erosion in columns on individual machines.

Now the Arc is gone because "the powers that be have decided it's curtains". What does this mean? "We're a bit over budget, so chop another column" or "Chop the column that brings in the least advertising?" (Well, your readers are entitled to be cynical too.) And of course you can always fall back on that old chestnut "...news of the machine will continue in the news pages ..."

Well, it is not the same as having a few column inches every few weeks. And to say the column "never really took off" is another empty hack-ism meaning "here's a few words of empty justification".

Yes I do have an Arc, but

there are three other machines of other types in the house and more at work so don't accuse me of being machine sensitive.

You started out claiming to be all things to all and the truth is you couldn't hack it so just have the decency to admit it.

Meanwhile my £50 a year will go towards something more useful - one of those PC emulators that you were only two weeks late announcing...

Zebra via CIX

HARD HITTING stuff Zebra, but to put you straight the column was cut simply because it was felt it didn't generate enough interest among readers. The point being, we could hack it, like we've always been able to hack it, but if we don't get feedback then can we do?

We dropped the Arc column as a trial for a couple of weeks and we had two letters complaining. So where were you then, eh Zebra?

So what's to do? Well, this maybe an old chestnut too, but how about if we

reinstate it? All you and all the other Arc owners out there have to do is write a postcard marked 'Restore the Arc now or you're so much dead meat' and send it to Andy Storer at 30 Monmouth Street, Bath BA1 2BW. If he gets 20 he'll restore it. Simple as that. Oh, and by the way, we ran the Arc PC emulator story the same day Acorn officially announced it.



Comic reader

Could I just say that I think you were quite right with your replies to people's letters when they complain about the dropping of their computers from your mag.

I started with an Atari 400, then upgraded to an Atari 800XL, C64, Atari ST and now an Amiga. I never regretted the demise of the above mentioned comps, but I do hope you realise that the same is true of mags.

Well the gist is that I have decided to drop your mag as there is now a cheaper weekly with more news and reviews. So goodbye and good luck.

Jeff, North Shields, Tyne & Wear

THANKS FOR that Jeff and here's a fiver for your trouble. I reckon that should buy you at least 20 copies of *The Dandy*.



Amiga crazy

You've gone Amiga crazy. Please don't try and justify yourself by

saying the Amiga is happening at the moment, etc, because I and other people who want to know can buy umpteen Amiga magazines. Are you being forced into producing the first weekly Amiga magazine? How can you justify charging 88p for 14 pages of *Express* coverage.

The rest is that rubbish Shopping section, which again is filled with Amiga ads. You say things like Macs are the bees knees for DTP, graphics etc. Just because the editor has a complex about spending all that money on his Mac doesn't mean to say he has to justify his purchase through the pages of *Express*.

Scott Robinson, Llandrindod Wells, Powys

THE AMIGA is 'happening', yes. But again I ask you to just read the magazine - I don't think we go over the top on Amiga news and reviews. As for 88p for 14 pages - I wonder if we are reading the same mag. And yes the Mac is the bees knees for DTP, graphics etc, but the editor doesn't own a Mac - he uses the one at work. If truth be known he owns a ST, Compaq 286, PC Engine, QL and a Gameboy. And yes there's no PC Engine, QL or Gameboy columns are there? No.



Future format

I'm sick of all these letters from 8-bit users and Archie owners slugging off the mag for concentrating on the more popular

More ultra-mesmeric giga-cash loot attraction utilities - parts 11 & 12



• Want to make a million with your computer? Then become a virtual military instructor.

11 The premise around which it is based on the unnatural luddite fear of technology. What I have done is provide a simple series of computer training courses for adults that are designed to enhance their fear of the unknown and keep them reliant on me for training, software and even machines. The unsuspecting client signs on for a 'free' assessment which they do well in. The assessment finds areas of strength that will have them signing on the dotted line for courses and reaching in their wallet for software that I sell. Each course is in several modules and each module almost teaches the student to complete a task. That way they have to keep on signing and keep on buying software.

On the odd occasion when a student realises what we're up to, we take them on as a rep and take over another area using their expertise. The net result is that I make profit selling software and organise courses that do

no more than a good tutorial in a magazine or with the software.

Johann Reamwell, London

12 My loot attractor is straightforward and simple. Since the current arms embargo to Iraq includes military training, all you have to do is put your Amiga in a suitcase, buy a copy of every flight sim available and catch a plane to Baghdad. Then you advertise your services as a military training instructor, teaching Iraqi pilots the weak points of advanced US combat aircraft. Then when Saddy gets lippy again you'll be quids in even more. Of course, you won't ever be able to return to the UK again but as with all loot attractors it's a small price to pay for a life of luxury.

Geoffrey Whitehead, Carlisle

ON THE COUCH

This week our resident psychiatrist Dr. Clare Anthony undresses the inner realms of MARK SMITH of LIVERPOOL'S fevered mind. But the leather couch and mahogany panelled walls of her virtual office await you too, so just write in with the name of your machine, your favourite software, and the machine you'd most like to own and she'll do the rest of the biz.

OK, that's enough chummy intro context - here's the address: Leather Couch Clare, *New Computer Express*, 30 Monmouth St, Bath BA1 2BW. Now get your pens out!

Right Mark, will you stretch across the leather please - here, bite on this block of wood, fine, now let's begin...

- MACHINE OWNED: CDTV
- FAVOURITE SOFTWARE: Welcome Disk
- DESIRED MACHINE: Spock's Control Panel

CDTV eh? Mmm... After consulting *Sub-metaphorical Mechanics Vol 12*, I found the entry. Consciousness Dilating Transitory Vortex. Yes, I'm afraid it's already fully documented and is very serious Mark. As we Freudians know only too well, Mr. Spock, and the level of technology embodied in his control panel, represents an almost unparalleled omnipotence in the search for objective knowledge. While CDTV may represent one of the highest throughputs of audio-visual stimulus known to mankind, it certainly can't manifest the sheer input bandwidth offered by Spock's unit.

As such, we're dealing with a temporal dichotomy. In short, Mark, you have a problem that will take you at least three hundred years to overcome. Unfortunately, useful though it may be, Commodore's 'Welcome' disk is unlikely to help you in this matter. You require a far more radical therapy. **PROGNOSIS:** Buy a MC² brain machine, connect it to your CDTV and plug the headphones into a mains socket. Then, after donning the special glasses, turn on the power. In less than one second, your synapses will overload with a sensory input almost equal to that of Spock's Control Panel.

machines. I mean it's not as though you're offering a social service is it? Personally I'd like to see even more Amiga coverage and I like the pieces on kit I'll never be able to afford. I don't want to look backwards, I'm interested in what's going on now and in the future, not yesterday.

So come on, give me more and stop defending your multi-format coverage.

Mark Taylor, Brighton

WELL IT SEEMS I just can't win, can I? I think it's about time there were some changes and may be you agree. So what's to do about it? I think we should formalise this machine specific coverage somewhat. So 8-bit and Archie users get writing in with pleas for re-instatement. Send a card to *Express Mail* at 30 Monmouth Street, Bath BA12BW with the name of your neglected machine. 20 cards is all it takes.

**Cover disk**

Every week I buy *Express* because it is informative, well written and nicely proportioned between the major computer types, PC, Amiga and ST.

Cover is also given to just about all other computers. However, did I buy the 27th June issue? Did I eek as like!!

I own a PC. Why on earth would I want to subsidise Amiga and ST owners by paying an extra 62p for a game I can't play? I have more disks than I can shake a joystick at, so I don't want it even as a blank, (and what about tape users?)

Anyway, I'm confused as to the terminology used in your adverts for this event. I thought that "give away" meant...well...give away, not sell for 62p. Perhaps it would have been a good idea to produce a percentage of issue without the ST/Amiga game disk, at your normal price of 88p.

Carl Young, Nottingham

'GIVEAWAY' HAS never meant 'give away', come on!

If you want to miss an issue then that's up to you, but I'd have thought 62p for a blank disk is still good going when you can expect to pay between 75p and £1.50 otherwise. But since you have bucket loads of the things I expect 62p wouldn't have made any difference to you. Anyhow, what about the 75 per cent of our readers who own STs and Amigas?

**Pricey game**

I had to laugh after reading S. Felix's letter in *Express* 136, in

Win a Wacko prize!

What's a rom-wack? My A500 crashed and I threw this out to the printer. Is it words of wisdom from the Guru?

```
rom-wack
PC: 024176 SR: 0000 USP: 03B5F4
SSR: 0FFFF2 XCPT: 0003 TASK:
03A6DB DR: 00000000 00000000
FFFFFFF 0000FFFF 00000002
00000000 40008000 00043A49 AR:
0004000B 00057DA8 00001C818
00034FFC 0003A1FE 00039DB6C
00000676 SP: 2141 0004 0017 2149
0000 0002 4176 0000 0000 0000 0676
00FC 0818 00FC 081A
```

N J Andrews, Birdlip, Glos

which he was bewailing the cost of PC games. 'don't worry,' you cried 'when PC owners buy lots of games the prices will drop!' Or will they? Remember a few years ago, Amiga and ST owners were astounded at the price of games £25! 'Never fear,' cried the greedy software companies, 'just rush out and buy loads and loads of games and the prices will drop!' they enthused gleefully. We did. And what happened? Precisely. Now the bloody things cost an extra pound! And as for you PC owners? Well....

John Quinn, Wicklow, Eire

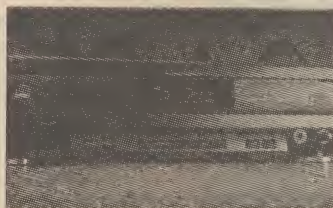
YES I'M AFRAID you're right John. History shows us, etc. But then there's a whole bunch of budget titles beginning to emerge for the ST and Amiga these days so something's changed!

But as for the current pricing I tend to agree. I think games should sell for at least half the price they go for. But then it doesn't bother me particularly, I think 95 per cent of them are utterly tedious.

**Shome Z80**

In *Express* 136, in the article showing the specification of Philips' CD-I machine, you mentioned a 16-bit Z80 chip. Is this chip a direct descendent of the Z80 and if so why was it not used by Amstrad for its new generation of 8-bits and could it be used for the second generation of SAM Coupé?

Leroy Fevrius, Vauxhall, London



• Is this Philips CD-I machine the forerunner of the next generation of Sam Coupés? - answer er...no.

Well what does it all mean readers? I'll send a copy of Domark's stunning *3D Construction Kit* for the Amiga to the first person who comes up with the best answer ('best' in this case doesn't necessarily mean 'real' OK?) Just send your guru interpretation to:

'Corn circles are just the spurious output of an off-line celestial laser', 30 Monmouth Street, Bath BA1 2BW.

Non-amiga owners can also join in and the winner will receive a new game of my choice. You should address your letters to 'I know the Amiga crashes a lot, but I won't make bad taste comparisons with space shuttles as I'm far too mature, thank you' at the same address.



WHOOAA THERE one minute Leroy. What second generation Sam Coupé? What new generation of Amstrad 8-bits? And after a frantic search through *Express* 136, what 16-bit Z80 chip? Are we reading the same magazine or is there a parallel universe out there somewhere?

**Forget it**

Your replies make me want to throw up. Why? Because you're just a smug know-all who edits everything down to make the writers look stupid and thinks he's smart by ridiculing them. Why can't you act more responsibly? A letters page should

Colin Blake, Haworth, Yorks

THAT'S ME just about done for this week and I can tell you if war is hell, these pages were like working in a meat packing factory. ■

**Write Now**

Write and tell Haydn Fitz-Williams what you think! Reach him at: *Express Mail*, 30 Monmouth Street, Bath BA1 2BW. Sorry, no personal replies, even with an SAE and remember, only SOME letters win a fiver!

**On-line mail**

Own a modem? Then squirt us a letter. *Express* has its own area on Aspects bulletin board (Telephone: 061 792 0260) where you can leave mail and upload/download files.

We also have our own conference on CIX. Why not give this on-line service a ring on 081-390 1244 and talk to us direct!

You can also leave E-mail for us on Prestel and Micronet - get in touch on 011112623, or on Telecom Gold @84:txt152

Swift Microcomputers Ltd.

84 High Street North, Dunstable Bedfordshire, LU6 3HP. Tele: (0582) 476257/8

3.5 DS/DD

50	£21.75
100	£33.00
200	£62.00
500	£137.00

5.25 DS/DD

50	£11.50
100	£22.00
200	£42.00
500	£95.00

**HD DISKS DOUBLE
DD PRICES**

DISK BOXES

3.5 40 CAP	£4.10
3.5 80 CAP	£4.50
5.25 50 CAP	£5.00
5.25 100 CAP	£5.50

ATARI

520ST - E DISCOVERY PK
£269

FAMILY CURRICULUM PK
£365

520ST - E TURBO PK
£315

EXTERNAL DRIVE	£65.00
STACY ST	CALL
ATARI TT	CALL
MEGAFILE 30	£339.00
MEGAFILE	£469.00
SM124 M'TOR	£137.00
SC1224 M'TOR	£259.00
LYNX	£73.00
PORTFOLIO	£175.00

AMIGA DEALS!

**A 500 Computer with
1Mb Ram & Second Drive**

£359!

0.5 Meg Ram £19.99

(add £5 for clock)

External Drive £49.99

**PHILIPS
CM8833 Mk2
£219
INC LEAD**

**COMMODORE
CDTV
CALL FOR
LATEST DEALS!**

**SONY 3.5 DS/DD
BULK .40p**

PRINTERS

STAR

LC 10	£145.00
LC24 - 10	£180.00
LC 200 COLOUR	£215.00
LC 24 - 200	£295.00

ARCHIMEDES

**FULL RANGE
AVAILABLE!**

AMSTRAD

ALT 286	£1580.00
ALT 388	£2030.00
PC2086 HD/COL	£893.00
PC2086 SD/COL	£599.00

**OTHER TYPES &
CONFIGS AVAILABLE**

30MB H/CARD £159!

COMMODORE

AMIGA 500	£305.00
SCREEN GEMS 1MB	£365.00
CLASS OF 90s	£510.00
FIRST STEPS	£510.00
A590 20MB H/DISK	£279.00
1.5 MEG RAM	£85.00
1084S MONITOR	£245.00
C64 N/MOVIES	£119.00
AMIGA 1500/2000	
AMIGA 2000	CALL
AMIGA 1500	£650.00
52MB H/CARD	£299.00
105MB H/CARD	£439.00

3.5 DS/DD & BOXES

25 disks + 40 cap box	£13.75
50 disks + 80 cap box	£24.25
100 disks + 80 cap box	£36.25
150 disks + 80 cap box	£51.75
200 disks + 2 X 80 cap boxes	£65.75
400 disks + 4x80 cap boxes	£138.75
500 disks + 5x80 cap boxes	£155.25

**NO QUIBBLE
LIFETIME GUARANTEE**

Call or send Cheques/Postal Orders to:

SWIFT MICROCOMPUTERS LTD

84 HIGH STREET NORTH, DUNSTABLE, BEDS. LU6 3HP

Telephone (0582) 476257/8 Fax (0582) 476258



PRICES INCLUDE VAT AND DELIVERY. ADD £9.00 FOR NEXT DAY DELIVERY

AMIGA

- Enhanced desktop and video editing from Gold Disk
- Scan your eyes over a great new disk magazine
- Musical demos and bowling aids from AmigaNuts

GOLD DISK EXCLUSIVE

If you have even the slightest interest in desktop publishing on the Amiga, then chances are that you know Canada-based Gold Disk pretty well. Put simply, Gold Disk is the undisputed leader in Amiga desktop publishing products with such programs as *Professional Page*.

Although the company has only recently released updates of both *ProPage* and *ProDraw*, development hasn't slowed for a minute. Already the company is hard at work on *Professional Draw 3* which should be with us sometime in 1992.

According to Gold Disk's own Keith Hughes (who, incidentally, is a Brit), *ProDraw 3* boasts a vastly enhanced user interface and considerably faster speed of operation (let's face it, *ProDraw* needs it). New features are a little vague at the moment, but Keith assures me that *ProDraw 3* is going to be something very special indeed.

This announcement comes in the wake of the recent release of *DesignWorks* from New Horizons, a company better known for its *ProWrite* word processor. I'll be bringing you a

review of *DesignWorks* very soon, so stay tuned for that one.

By the time you read this, Gold Disk's long awaited *ShowMaker* desktop video system should have started shipping, so check the shelves of your local software store for that one. Gold Disk is very excited by *ShowMaker*, with words such as 'revolutionary' and 'simply stunning' being used with blatant disregard for the innocent.

Once again, I'll be taking a damned good look at this one, so expect a review within the pages of *Express*.

On the subject of Gold Disk products, PC-owning Amiga users may also be interested to learn that Gold Disk is hard at work on a PC illustration package that steals more than a few good ideas from Gold Disk's existing *Professional Draw* package.

Codenamed *GSDesign*, the program still has a long way to go before it is ready to hit the market, but already it sounds simply delicious.

According to Keith, although the program features the same user interface and even the same code as *ProDraw*, the company has built upon its

experiences with *ProDraw* to develop *GSDesign*. Using a powerful Windows-based interface, *GSDesign* looks set to take the PC DTP market by storm.

Another package that learns more than a thing or two from its Amiga counterpart is Gold Disk's recently released *Animation Works* system for the Macintosh. Mac users can now get in on this animation lark with their very own dedicated package.

"*Animation Works* was designed to allow absolutely anyone to produce good quality animations on their Mac," Keith told me.

Well, the Amiga has been doing it for years, so I'll be interested to see how *Animation Works* performs against such packages as Disney's *Animation Studio*.

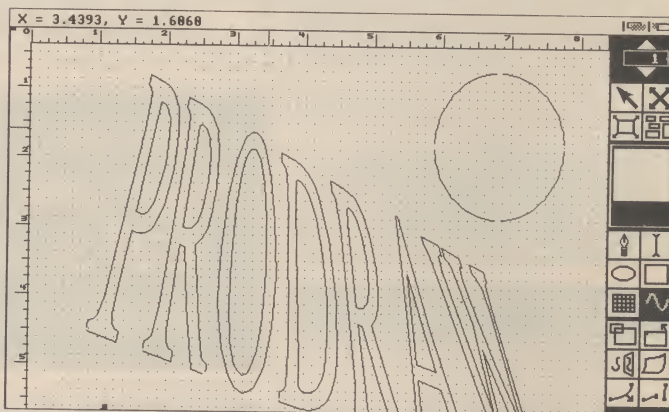
Once again, Mac owners should look out for a review of that one.

☎ You can find out more about any of Gold Disk's products by telephoning its British distributor HB Marketing on 0753 686000.

WHERE'S THE FONTS?

On the subject of fonts, wouldn't it be nice if you could actually buy a decent set of fonts for *ProPage*? I don't know about you, but I'm totally and utterly bored of Triumvirate and Times.

OK, Gold Disk does produce a range of fonts, but they're hardly earth-shattering stuff, are they? Especially when you compare them to the kind of fonts available for users of Mac and PC DTP packages.



• If you thought *Prodraw 2* was the ultimate in Amiga illustration packages, then keep your eyes open for *ProDraw 3*.

THE SILICON PICTURE COMPANY

FULL COLOUR

WELL AT LEAST ALL 4096 COLOURS THE AMIGA CAN DISPLAY

Using over £30,000 of the latest print technology we can produce a full colour print, T-Shirts & sweatshirts using the Amiga's full 4096 colour palette, we **DO NOT** use dot matrix or inkjet printer but the Cyan, Magenta, Black, Yellow process as used in full colour printing, the prints are taken directly from the Amiga screen giving you the full 4096 colour palette. (Coming soon full 24 bit output.)

WHAT TO DO

As we have said, these prints are taken directly from the screen, which means you will need to frame your picture with a black border. This is what you do: draw a black 5 pixel border left & right, 10 down and 25 up for lower and medium resolutions. For high res & Ham double the above numbers. Then all you need to do is send us your disk giving instructions, what size you require (A4, A3, T-Shirt/Sweatshirt), & quantity. **Please send £3.50 for demo print.**

PRINTS

A4 = (approx. the size of this magazine) **£5.50**
 A3 = (approx. this magazine opened out) **£6.50**
 A0 = £Ring. Framed = £Ring
 The size of a bedroom wall or larger (Ring)
 Encapsulated in clear plastic
 (looks great) = **£2.00** extra
 Please add £1.50 postage & packaging

T-SHIRTS

Child = **£13.99** (2-4, 5-6, 7-8, 9-11)
 Adult = **£15.99** (S, M, L, XL)

SWEATSHIRTS

Child = **£15.99** (2-4, 5-6, 7-8, 9-11)
 Adult = **£19.99** (S, M, L, XL)
 Please add £1.50 postage and packing

Prices are subject to change without notice.
All cheques/postal orders made payable to The Silicon Picture Company

The Big Alternative Scroller = **£45.00** Imagine = **£190**
 Real 3D Beginners = **£120.85** Real 3D Pro = **£340**
 Wordworth (Workbench 2.0 like performance even on a 1.3 machine) = **£129.99**
 Also available, 200 disks of PD software - ring for details.

Personal callers by appointment only

081 - 556 - 7607

8pm - 8am
 Answerphone

22 Lascelles
 Close,
 Leytonstone,
 London,
 E11 4QE

What we need is a utility that can convert Mac PostScript and PC outline fonts to Amiga Compugraphic format. If anyone feels that they could do the job, then I'd love a copy of the program. Who knows, I might even send them a freebee game for their efforts!

NEW DISK MAG LAUNCHED

I receive some strange post at times. Take last week for example - two envelopes turned up on exactly the same day, both of which were addressed to 'James Holborn'. I haven't a clue who the hell this James Holborn chap is, but I thought I'd still open his post to see just what was inside.

To my amazement the first contained two lonely disks; there was no cover note, no nothing, so I was a little worried about popping them into my recently revived B2000 (I practise safe computing!).

The second envelope cast a little light on the situation. The two disks were actually the latest issue of a new disk magazine called *Scanner*. I'm a great fan of disk mags, so I thought I'd check *Scanner* out for myself.

To my surprise, it turned out to be good, very good. Packed with articles, reviews, utilities and a fair splattering of demos and some pretty decent games (including a great version of the classic

game *Missile Command*), *Scanner* is one of the best disk mags I've encountered since Martyn Brown's *Newsflash*.

In fact, *Scanner* is so good that my head almost exploded with excitement (film buffs will understand that one!).

Scanner can be obtained by writing to Telescan Computer Services, Handsworth Road in Blackpool. Don't ask me what its phone number is, because nobody will tell me either.

THE CABLE CLUB

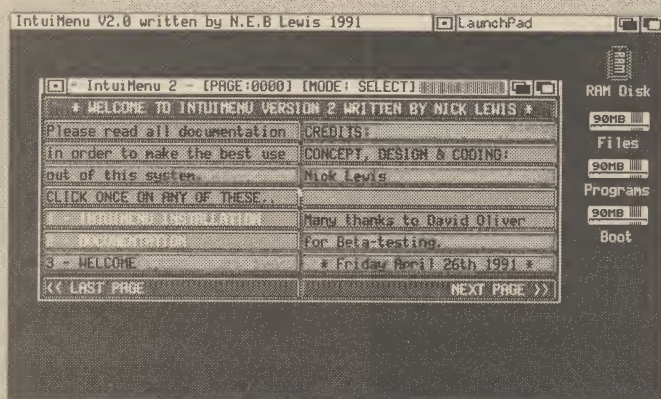
Going still further into my rather empty postbag (write to me!), I found a very interesting letter from Barbara Yarwood. Barbara has recently set up a company

that specialises in producing leads for computers, especially the Amiga.

Barbara will make you a lead for just about anything, so give her a call.
Tel 0323 487030.

On the subject of leads, has anyone got a lead that will allow me to connect my Sega Megadrive to my Amiga 1084S monitor? (It's got a 'D' style connector on the back). I've had the megadrive for over six months now and it's been gathering dust just because I don't have a lead that will work with it. I've tried wiring the damned thing up myself, but it stubbornly refuses to work. If anyone can help me out I'll be eternally grateful.

Jason Holborn



• If you've ever wanted to load a program from hard disk without having to search through a maze of directories, then IntuiMenus for you. Just click on the program you want an IntuiMenu loads it automatically.

THE BEST IN AMIGANUTTY PUBLIC DOMAIN

I thought it was time I gave a well deserved plug to my old friend Ray Burt Frost at the AmigaNuts PD library (0703 785680). Ray recently sent me a selection of disks from his buiging library. Here's a rundown of some of the goodies I encountered:

IntuiMenu (Disk 1075) - IntuiMenu is a great little program that will be of particular interest to hard disk users. It enables you to set up a mouse driven menu containing all your favourite programs. Just click on the one you want an IntuiMenu runs it.

Ten Pin Bowling (Disk 834) - I just had to mention this one. Written by Wacky Carrot Software (great name lads), this

is a ten pin bowling scores archiving system. Sounds fun, eh? Oh yeah, I'll warn you now - this is most definitely not a game, so don't buy it expecting to play ten pin bowling on your computer. Don't say I didn't tell you.

Jean-Michel Jarre Demo (Disk 271) - Jarre fans will love this disk which contains Amiga-ised versions of tracks from *Equinoxe*, *Zoolook* and *Revolutions*.

The Four Seasons (Disks 1080a/b) - Some hip and groovy guy called Vivaldi has come up with this great little jingle called *The Four Seasons*. If you're feeling all cultured, then impress your friends with this two disk set.

WE MUST BE MAD

Due to massive bulk buying and low cost advertising we can offer you high quality European manufactured disks at these extremely low prices

3.5" DSDD DISKS 31p INC VAT + LABELS

250 + @29p each; 500 + @ 28p each; 1000 + @ 27p each
ALL DISKS CERTIFIED 100% ERROR FREE

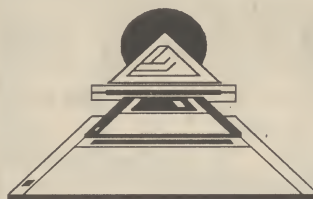
SONY 3.5" 38p 3.5" DSHD 65p
5.25" DSDD 19p
5.25" DSHD 36p
DSDD BULK

100 Capacity Disc Box.....3.75 50 Capacity Disk Box.....3.25
Mouse Pockets 1.50 Mouse Mat 1.75
Printer Stand 3.75 Amiga Dust Cover.....2.50
Posso Box 15.00 Atari Dust Cover 2.50

Amiga 512K RAM Expansion with clock 32.00
Amiga/Atari External Drive 59.95

THIS MONTHS 200 3.5" DSDD DISKS SPECIAL OFFER + 2 x 100 CAP BOXES 64.95

Please add £2.85 p&p/next day £7.50. Cheques/POs to
PLC COMPUTER SUPPLIES (Dept NCE) **TELESALES HOTLINE**
11 Meakin Avenue, Clayton, **0782 212970**
Newcastle, Staffs ST5 4EY.



NEWTRONIC

Sound Design & Midi Software Ltd,
62b Manor Avenue,
London SE4 1TE

TEL/FAX **081 691 1087**

INTERNATIONAL MAILORDER SERVICE



The **Geerdes** MM Collection is Europe's largest sequence library. International Pop/Rock - Jazz - Classic - Soundtracks - Drum Patterns. Send S.A.E for complete song catalogue.

MIDI FILE for ST/AMIGA/IBM also MC 500 & Q80.

- | | | | |
|----------------------|-----------------|------------------------|--------------|
| ● 925 The One & Only | Chesney Hawkes | ● 645 Ice Ice Baby | Vanilla Ice |
| ● 879 Tainted Love | Soft Cell | ● 933 Should I stay... | The Clash |
| ● 928 Megamix | Snap | ● 911 Do The Bart Man | Bart Simpson |
| ● 927 You're In Love | Wilson Phillips | ● 862 Joyride | Roxette |
| ● 929 Wiggle It | 2 In A Room | ● 185 Bamboleo | Gypsy Kings |
| ● 938 Here We Are | Gloria Estefan | ● 822 3.a.m. Eternal | KLF |
| ● 953 Hanky Panky | Madonna | ● 654 Pray | MC Hammer |
| ● 903 Cry For Help | Rick Astley | ● 607 Sadness Part 1 | Enigma |
| ● 297 Light My Fire | Doors | ● 864 I Believe | EMF |
| ● 509 Tom's Diner | S. Vega & DMA | ● 717 All Together Now | The Farm |

How to order: Each title £9.90 only + £2.00 P&P. Minimum order 3 titles. We accept cheques, cash, postal orders etc, or use our 24 hour credit card hotline. Please state song number, your computer/software type. Most orders are completed within 10 days but allow 28 days for delivery in cases beyond our control. Call us if you have any questions - we will help!

We stock sounds and/or MIDI software for almost every synth you can imagine:

- YAMAHA:** SY77/22, DX7/II, TX81z, V50, DX11/21/27/100
- ROLAND:** D50, D5/10/20/110, MT32, MKS50, JX8P, U20/220, MKS100/S10/220, W30
- KORG:** M1, M3/r, T1/2/3, DW800, POLY 800, DSS1
- ENONIQ:** VFX, ESQ1, SQ80, MIRAGE, EPS
- KAWAI:** K1, K4 CASIO CZ, VZ
also MARTIX1000 & PROPHET VS
Software Formats - Sound Cards - Sound Disks etc

Summer specials

- C-Jab NOTATOR.....£499.00
STEINBERG CUBASE.....£525.00
GEERDES U20/220 SOFTWARESTATION
Editor + 500 sounds.....£129.00
GEERDES VS SOFTWARESTATION
The only PROPHET VS Editor.....£129.00
GEERDES VZ SOFTWARESTATION
Simply the best.....£129.00
GEERDES D5/10/20/110/MT32 SW5
Editor/Librarian/1st TRACK.....£129.00
NEWTRONIC M1 SUPERMANAGER
+ 1400 studio sounds.....£49.00 only
NEWTRONIC Cheetah M56
Brilliant Bankloader.....£15.00 only
(Atari ST + Hi-res Monitor (SM124))

ST

- More than just the STyle and Book on ST horizon
- Spruce up your documents with extra fonts
- Taking the pain out of typing with Abbreviator

NOT MORE STs!

Oh no, it's happening again. Just as the ST community prepared itself for the arrival of the STyle and Book additions to the ST range, Sam Tramiel lets slip that there are two more STs in the Atari pipeline.

Quite what these machines will be like is uncertain. All that Sam would say is that they're, "wow machines". When asked if the machine would be an

extended STE, he declined to comment, although this seems one of the more likely options.

If the machine was an extended STE, what kind of features could we expect? Well for a start, Atari has long expressed an interest in 1.44Mb floppy drive units, so this seems as good a place as any to start. An upgraded version of TOS would, of course, be incorporated. Again, Atari has designed

an elegant version of TOS for the Mega STE and it's likely that it would incorporate this.

The memory requirements of machines keep rising. In the early 80s, 16K was viewed as being large RAM space. Nowadays, you'll find yourself running out of memory with 1Mb of RAM. So a new ST is bound to feature at least 2Mb of RAM, which can be upgraded easily using simple to install SIMM cards.

The Mega STE features AppleTalk capabilities, as well as space for VME cards, so the new machine is likely to incorporate these features.

One of the most obvious upgrade paths would be a decent sound chip. Alright, so the STE has that DMA chip, but it still has to rely on the increasingly weedy-sounding internal chip warbler. It would seem obvious then that Atari would place a natty new sound chip inside the machine, perhaps one that it has developed for the new consoles.

The STyle and Book both feature RAM card capabilities. These credit card size wafers of technology enable the user to store up to 4Mb of data on board; these can then be transferred to other machines.

So it seems obvious for Atari to include RAM card space. This would enable the new machine to act as a sort of base unit for either Book or STyle, enabling transfer in and out.

Anyway, these are my predictions. I refuse to be drawn on whether or not I have been given some inside information on these matters.

VECTOR FONTS PART ONE

The quality of ST document processing software goes from strength to strength. Therefore it's nice to see support software emerging for these which enables the user to get that little bit more out of them.

ScotSoft International, formerly Gunning PDL, has acquired the distribution rights to just such a range of programs. Users of *Signum*, *Signum II*, *Script*, *Write On* and *That's Write* now have access to some 100 vector fonts.

Each font costs £5 and comes on a double sided disk with a printer driver. Fonts on offer include Broadway, Bubble, Computer, Digital, Cooper and Futura. Write to ScotSoft International, Dept. STPD, 47 Auchingane, The Tryst, Edinburgh, EH10 7HX.

VECTOR FONTS PART TWO

System Solutions, purveyor of high quality ST software and hardware, has just acquired the distribution rights to *Genus*, the *Calamus* Font Editor, which it is selling for £89.95.

Genus loads all *Calamus* fonts, including the copy-protected ones and *Publishing Partner* fonts. *Pagestream* fonts can be imported and converted to *Calamus* format. In addition to all this *Calamus* CVG files can be imported or exported as well.

Up to two fonts can be held in memory at one time, meaning that these can be mixed and matched, creating your own fonts. Portions of fonts (segments) can be stored in a library and used later to create original fonts.

WHY TYPE 20 LETTERS WHEN ONE'S ENOUGH?

Unless you happen to be a wizard on the keyboard, and can happily trot out 80 words per minute without even so much as a surreptitious glance sideways at your keyboard, then you'll know the problems associated with creating long documents.

Abbreviator ST is a new American program which addresses itself to these problems by enabling the user to create a catalogue of abbreviations.

Thus, as you type in your document you simply replace commonly used words and phrases with an abbreviation and then

the program consults its master lists and set about filling in the gaps.

The program runs as a desk accessory, which means that it can be used in all manner of word processors or DTP packages. You don't have to create separate lists for each program.

Abbreviator ST is priced at \$19.95, though expect to pay about another \$10 for shipping costs. It is available at the moment from Kyle Cordes, 3815 Greengrass Drive, Florissant, MO 63033, USA
☎ 0101 314 921 0614.

Supra

MODEMS

AMIGA/ATARI/PC MODEMS

Supra 2400
(2400 baud) **£120**

Supra MNP 2400 **£165**
(2400 baud error correcting)

Supra 2400 Plus **£220**
(The ultimate 2400 baud modem, 9600 baud throughput)

HST MODEMS
(9600/14400 BAUD)

£595

Supra Modems are guaranteed for 4 years and are auto-dial, auto-answer and fully Hayes compatible. Prices include VAT.
Free computer cable with every modem.

081-566-3639

SUPPLY SOLUTIONS,
PO BOX 2136, LONDON, W13 8QJ
Supra approved distributor • Open till 7pm

ARCOM COMPUTER SERVICES

IBM PC - NINTENDO - SEGA - ATARI - AMIGA**GAMES AVAILABLE FOR ALL MACHINES
IN ALL FORMATS**

We cannot possibly list all the games we have available, so why not contact us and let us help you choose your next game

IBM PC's
Wing Commander..29.99
Space Quest IV..28.99
F19 Stealth..28.99
Lemmings..28.50
Zeliard..28.00

JOYSTICKS DISKS SOUND CARDS

FOR MORE DETAILS

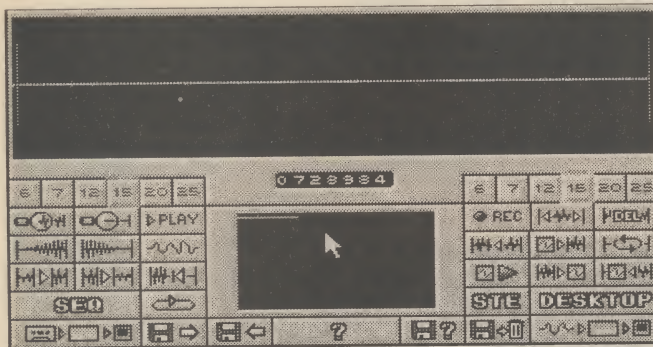
ARCOM COMPUTER SERVICES

Alice House, 10 High Street,
Ashwell, Herts. SG7 5NL

OR CALL

046274 2024

PRICES INCLUDE DELIVERY & VAT



• £10 off the price of the Daatasound sampler is just one of the reductions Pandaal has made to its range of software and hardware this summer.

Other features include: automatic kerning, seven default kerning options, left, right and tab offsets, a calculator and a comprehensive array of graphic editing functions.

System Solutions is also distributing Calamus Assistant, the on-line help program. SS claims that this desk accessory help program is so comprehensive that you won't need to look at the manual. It costs £29.95. For either of these programs contact System Solutions at Windsor Business Centre, Vansittart Road, Windsor.

☎ Tel: 0753 832212.

SUMMER CHEAPIES

The quiet summer months are usually a good time to pick up reduced price software and hardware. Pandaal Marketing is the latest company to drop its prices for the summer monsoon.

The Daatasound sampler has been reduced from £39.95 to £29.95. It offers 8-bit sampling, sequencing and MIDI controls.

The price of the 360 DPI Daatamouse has been cut by £10 from £39.95 to £29.95.

The Daatascan hand scanner, which includes four scanning resolutions, a real-time display and can save files in IMG, TIFF or Degas file formats, has just been reduced from £189.95 to £149.95.

Pandaal Marketing is at 44 Singer Way, Woburn Road Industrial Estate, Kempston, Bedford, MK42 7AF.

☎ Tel: 0234 855666.

Andy Hutchinson

Andy Hutchinson is the news editor on the UK's biggest selling magazine for the ST, ST Format, out every month.

CPC

- Turn your CPC into a worthy card playing opponent
- Is Hydra another Stun Runner or a Hard Drivin'?
- What exactly can a poke do for you? We reveal all

MORE FROM GOLDMARK

As well as all the Goldmark goodies I told you about last week, the company has yet more products in the pipeline.

Two of these are card games. Blackjack (6128 only) is for one to three players, and lets you configure the program for British rules, or any

standard rules, for that matter. For those who don't know, Blackjack is a bit like Pontoon with knobs on. It will set you back £14.95.

Following shortly afterwards at the same price will be Cribbage. Again, this only works on 6128s. Included with the

Continued on next page ➤

WHAT IS A POKE AND HOW DO YOU USE ONE?

It occurs to me that although most of you know how to use the game pokes I put in this column now and again, the rest of you probably wonder what it's all about.

Well, pokes 'interfere' with the game code in such a way as to give you extra lives, energy, weapons - it really depends on the game. Pokes are written by experienced programmers who have been able to 'get inside' each game to make these little alterations.

You don't really need to know how pokes work, but you do need to know how to use them. So here goes...

1) Make sure the routine is written for your

format - disk or tape. They will not generally work with both.

2) Type it in to the computer, making sure there are no errors.

3) Save the program to tape or disk (not the game tape or disk!) so that it can be used again.

4) Put in the game tape or disk and type ITAPE or IDISC.

5) Type RUN to run the routine (not RUN - (CTRL+ENTER) as you normally would)

You should now find that the game will load normally, or you will be given instructions on what needs to be done.

AC COMPUTERS

FOR ALL YOUR AMIGA PD NEEDS

Send SAE for our extensive catalogue
47 Sutton Road,
St. Albans,
HL1 5B42

or Phone (0836) 775924

WATCH THIS SPACE FOR DETAILS!!!

package you get a, "comprehensive booklet", as with the other program, explaining all the rules and regional variations of the game. This time it's you versus the computer.

Also new is a label printer with graphics! This £12 program lets you print out your own address labels, or labels for your home-made wine bottles or jam jars and so on. You can import graphics from any of Goldmark's Graphics Galore disks, although 56 pieces of clip-art are included with the printer anyway.

Z80 SIMULATOR

Z80 Simulator is one of the new Goldmark utilities I mentioned in last week's column. I've had time to investigate it a bit more thoroughly now, and I've come to the conclusion it's a really excellent little program.

Simulator does exactly what it says it does - it tests all your Z80 code without actually executing any of the instructions. The contents of the registers, disassembled instructions and other valuable information are displayed continuously.

Z80 Simulator acts as a very powerful machine code monitor. Whereas other monitors use up a part of the machine's memory, however, Simulator doesn't. It leaves you with the whole of one 64K memory bank free, so there are no worries about bits of code overwriting one another.

It's worth stressing that this program really is for experienced machine code dabblers only. Although it

offers a comprehensive help screen on start-up, you do really need to know what you're doing.

Z80 Simulator costs £19.95 (£15 introductory offer price!) and works, naturally enough, on 128K machines only. It's not for the inexperienced, but if you're into machine code and debugging, it's a very powerful and very useful little utility indeed.

Get in touch with Goldmark at: 51 Comet Road, Hatfield, Hertfordshire AL10 0SY.

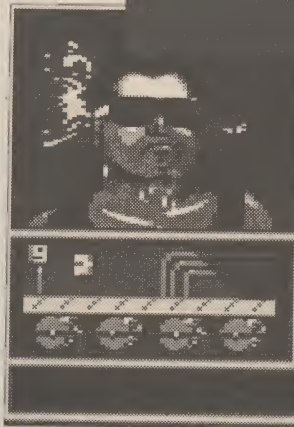
☎ Tel: 0707 271529.

HYDRA

Domark's association with coin-op manufacturer Tengen has produced some pretty decent Amstrad conversions, like the excellent *Hard Drivin'*. It has also produced some pretty rough ones - *Stun Runner*, for example. Unfortunately, *Hydra* falls into the latter category...

The plot is pretty standard fare. You're some kind of ultra-tough, radical mercenary-type dude who pilots a fast jet-boat down enemy-infested rivers carrying valuable cargoes for money.

Not only do you have to stay awake... er, sorry, I mean stay alive, you have to pick up copious quantities of fuel. Not a very environmentally-friendly boat, obviously...



• That's you - the hard dude. And next to you is the map showing where you have to go.

• Blocky graphics, bumbling animation - not a good start for *Hydra*.

Mind you, this thirst for fuel could be the result of the boat's ability to fly for short periods using the 'boost' control. In this respect, *Hydra* is similar to Titus's *Fire and Forget*; crudely

executed and lacking in variety. The graphics are blocky, the animation stiff and the gameplay very thin. The original arcade game was no great shakes, and it's been downhill all the way from there.

NEW AGE COMPUTING

For all your Amiga & communication needs!

If there is anything you want that is not listed, give us a call or send for our free complete catalogue

All prices include VAT
Everything sent 1st Class

A500 0.5 MEG MEMORY UPGRADE

Can be made into 1 Meg CHIP RAM.
With Clock Just £26.99

REPLACEMENT MICE

280 dpi - mouse mat & holder included

Naksha Mouse£23.00
Naksha + Operation Stealth£26.00

MOUSE MATS

VINYL.....£1.99 FOAM.....£2.99

PRINTER STANDS

UNIVERSAL.....£6.99 WIRE.....£9.99

DUST COVERS

A500.....£4.50 STAR LC-10.....£5.50

BULK DISKS

BENCHMARK 3.5" SONY BULK WITH LABELS & REPLACEMENT GUARANTEE.

25	50	100	500
£16	£28	40	£162

PREFORMATTED

As above, but fully Amiga formatted.

25	50	100	500
£17.25	£30.50	£45	£185

SLIMLINE 3.5" AMIGA DRIVES

With throughput & switch
£65.00

TURBO 68000 7/14 MHz SWITCHABLE CHIP

Complete with board, manual and software
Only £39.99

NOTE: Revision 5.2 Amigas above only

PRINTER RIBBONS

Star LC-10.....£3.00	Star LC24-10/24-200.....£4.50
Epson MX/FX80/800...£3.50	Epson LX80/86.....£3.00
Panasonic KXP1124....£4.75	KXP 1080/1081/1180.....£4.50

Call for your printer NOW!

3.5" DISK STORAGE

40 Capacity lockable box	£4.50
80 Capacity lockable box	£5.50

POSSO

150 Capacity disk drawer.....	£17.00
- lock for above Posso	£6.50

MOUNTAIN BREEZE COMPUTER AIR IONISERS

Freshen the air you breathe! Only £25.00

COMPUTER LYNX - The Amiga disk magazine

The action packed magazine ON A DISK! With demos, news, interviews, reviews and more! We can't explain it all here - send for a taster. Exclusive from NEW AGE only £1.50

FREELANCE

BRITISH TELECOM CORDLESS

Incorporating NEW TECHNOLOGY

Pager £89.95 Intercom £119.95

POSTAGE AND PACKING: Please add 50p for orders under £2.00, £1.50 for orders up to £10, and £2.00 for all orders above.

ALL PRICES INCLUDE V.A.T. Payments payable to "NEW AGE COMPUTING"

Dept NCE, 187 Perrysfield Road, Cheshunt, Herts, EN8 0TL
Telephone (0992) 465366 / (0831) 820097. Fax: (0992) 450009

WELL DONE!

Geo Graham from Sunderland has nothing but praise for two companies in the CPC field:

"I'm a hardware man at heart so I became interested in ROM boards and now in EPROM blowing. I mention this because of the excellent service I've received from Microgenics of Rotherham. It had actually stopped making the equipment which I required, but set up especially again on my request.

"While playing with ROM boards, I had of course (long ago) purchased the fabulous UTOPIA from Arnor. In one of my thoughtless moments, I knackered it. No longer was I in UTOPIA (groan). On phoning Arnor with the intention of ordering a replacement, I mentioned I had one but it was kaput.

"The gentleman on the end of the line said, 'send it in and we will check it', which I did. And two days later a brand new UTOPIA popped through my letterbox absolutely free.

"Top marks, Microgenics, and top marks, Arnor. May success be with you!"

Good news indeed, Geo. It's nice to hear people being complimentary about the service offered by companies for a change. It's a sad fact of human nature that most people only pipe up when they have a beef.

Rod Lawton

Rod Lawton is editor of Amstrad Action, Britain's best CPC magazine.

C64

- Formula 1 sim that needs more than just racing skills
- Greatest C64 shoot-'em-up going for a song
- Pokes for all the latest software on the C64

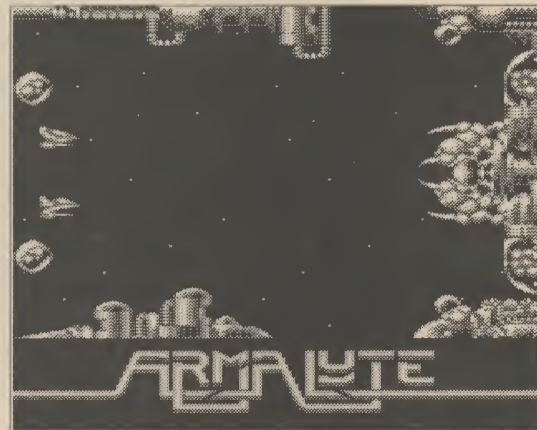
IT'S A STEAL

Three years ago Armalyte took the C64 world by storm, and now the game is on budget for a mere pittance (but who's complaining?).

The plot follows on from its predecessor, Delta, at the end of which the H'siffians were found guilty of gross

piracy in Delta space. In the period between when the two games are set a patrol wandered through the region, and found a deserted H'siffian outpost. For some reason, this is where they decided to form Armalyte industries.

Things were going fine up until recently; scientists sent a transmission



• Who says sequels are always inferior? Armalyte, the follow-up to Delta, can stake its claim to be the best game for the C64, with graphics and music to match. Now the game is available for peanuts.

reporting a potential breakthrough, but then all contact was lost. It is rumoured that the H'siffians have made similar progress, and have reclaimed the outpost as their own. Armalyte industries has no choice other than to recruit mercenaries to wipe the H'siffians from the area.

That is where you come in; up to two players can take part in the mission, although in single player mode a remote drone accompanies the ship. The craft has no additional weaponry when it arrives, but all manner of enhancements can be obtained by shooting munitions crystals which frequently appear.

The game is arranged eight different levels, which scroll horizontally. There is a plethora of alien craft, with a liberal sprinkling of huge motherships, snakes, etc.

Collecting a munitions pod untouched will render the craft invincible for roughly five seconds. When shot, it cycles through a number of enhancements; extra forward firepower, rear firing, sideways firepower, trident (which enhances forward firing), converge (which takes rear bullets and puts them through the front), batteries and generators.

The last two are for use with your superweapon; the batteries hold extra charge for repeated use and generators aid the recharging of batteries.

The superweapon comes in three forms: a piercing laser beam, which can pass through absolutely anything, but uses tons of energy; a barrage of laser

Continued on next page ➤

**ANALOGIC
ANALOGIC
ANALOGIC**

ANALOGIC COMPUTERS (UK) LTD
152 Latchmere Road
Kingston-upon-Thames
Surrey KT2 5TU

Telephone Mon - Sat
9am to 9pm
TEL: 081 546 9575
FAX/TEL: 081-541-4671

COMPUTERS

520 STE DISCOVERY EXTRA PACK 1 Meg£319.00

Indiana Jones Last Crusade, Anarchy,
Dragons Breath, Super Cycle, Neochrome,
First Basic, ST Tour and CX40 Joystick

1040 STE FAMILY CURRICULUM PACK 1 Meg£349.00
2 Meg£439.00

DISK DRIVES

1 Meg 3.5" internal (Atari & Amiga)£54.95
1 Meg 3.5" external with its own PSU£59.95

PHILIPS 15" TV/ MONITOR Remote Control£229.00

MEMORY UPGRADES

WHILE YOU WAIT!

1. 520 ST/STM/STF/STFM to 1 Meg£59.95
2. 520 ST/STM/STF/STFM to 2.5 Meg£159.95
3. 520 STE to 1 Meg£29.95
4. 520 STE to 2 Meg£89.95
5. 520 STE to 4 Meg£169.95

- ★ We specialise in Surface Mount Chips
- ★ We stock Third Coast Technology and Frontier Software Memory Upgrade Kits.

MEMORY CHIPS FOR YOUR ST AT LOW LOW PRICES

16 x 256K x 1 Bit Dram Chips£29.95
16 x 1 Meg x 1 Bit Dram Chips£89.95

AMIGA and ATARI REPAIRS WITHOUT DIAGNOSTIC FEES

520/1040 (STFM/STE) and Amiga 500 ● Fixed Charges£59.95
● Fast Turnaround

POWER SUPPLIES for ST with 1 year guarantee£49.95

- ★ All prices include VAT and next day Delivery
- ★ Please call for price quotes on Printers and other Atari and Commodore products.



WE PROVIDE PICKUP SERVICE FROM
YOUR PREMISES FOR £5.00 + VAT



Jennix Public Domain

FOR
THE
BEST
IN
ATARI
PUBLIC
DOMAIN
SOFTWARE

**66 ABBEY ROAD,
STROOD, KENT,
ME2 3QB**

Programming,
games, art,
educational, demos
and noise tracker.

**ATARI STE Public Domain
Software. ★ Public Domain
packs £5.00 each.
(6 disks per pack)**

**Disk catalogue
available listing
over 400 disks -
please send 50p**

**Cheques/P.O's made payable to:
Jennix Public Domain**

beams, guaranteed to eradicate the largest of attack waves; and a high-availability laser beam useful for general everyday alien bashing (and it uses the least energy).

In one player mode a remote drone is at hand. This fires in unison with the main ship, and also spits out its own superweapon. It follows the ship around, but its trajectory can be fixed by a hefty prod on the space bar.

Armalyte is undoubtedly the best shoot-'em-up for the C64, as well as

being my favourite game of all time. The gameplay has not aged at all since its release in late 1988. Indeed, it remains fresh, challenging and addictive. Admittedly, some will find the attack waves a tad repetitive, but every game is surprisingly refreshing.

The main asset is the graphics; possibly the best alien sprites ever seen in a horizontal shoot-'em-up, along with some stunningly detailed backdrops (many inspired by Geiger himself). The motherships also deserve some credit,

as they are large, well defined and an awesome adversary!

Sound is superb, with some effective FX and beautiful burbly music from Martin Walker. If you were stupid enough to miss this game before, run all the way to your local software shop with £4 in your hand and demand your copy.

POKES GALORE

Here are some welcome POKES for the lovable pachyderm platform game, *CJ's Elephant Antics*:

POKE 18429, 181 Infinite lives (Player one)
POKE 19871, 189 Infinite lives (Player two)
SYS 6144 Restart game

For all you *Creatures* fans out there, here is an Action Replay POKE to make life considerably easier;

POKE 15596, 60 Disables collision detection
POKE 15596, 173 Enables collision detection

It's worth noting that you should freeze the program during the game and not on the title screen, as Apex has employed some rather natty protection!

For the swashbucklers among you, some help with Domark's *Skull and Crossbones*:

POKE 28479, 165 Infinite energy
SYS 16624 Restart the game

GOOD NEWS

Well, it seems that the software deficit is finally coming to an end. Advertising revenue is picking up, and new software is beginning to trickle into the shops and soon the trickle should be a flood.

There is a multitude of licenses to look out for, such as *Rod-Land*, *Alien Storm*, and *Toki*, plus some stunningly original software such as *Winter Camp*, *Turbocharge*, and *Exile*.

Late July/August looks set to be a fun time!

Andy Roberts

FORMULA 1 RACING GAME IS A REALLY GOOD IDEA

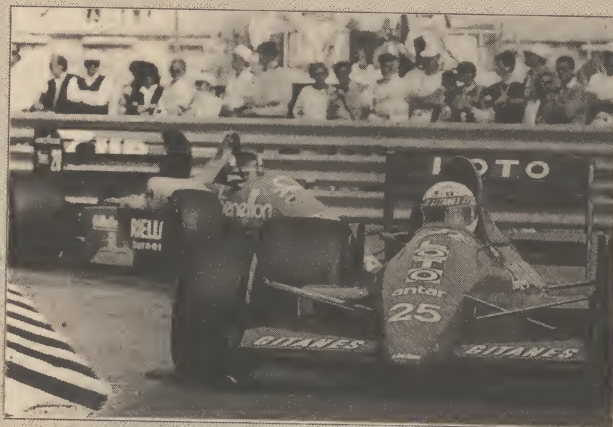
After the abysmal *Saracen Paint*, Idea can hope to claw back some respect with *Formula 1 Grand Prix*.

The game has two main elements, namely the arcade racing sections and the technical side of Formula 1 racing. The arcade section is reminiscent of *Rally Speedway* (oooh, ancient!), and indeed *LED Storm*, in that it takes place on a vertically scrolling roadway.

The graphics are looking particularly good, with some nicely defined backdrops and some neat hi-res overlays on the car sprites. The intermediate/technical screens are very well laid out, but let's hope that there is some good documentation to back it up.

There are nine different tracks to attempt, along with 20 other drivers against which to pit your wits. As if that wasn't enough, certain copies of the game include a free badge!

If other racing games (such as *Revs*) don't appealed to you, *Formula 1 Grand Prix Circuits* could be worth checking out.



• *Formula 1 Grand Prix Circuits* is a racing game with a difference: as well as the racing sequences you also have to make some far reaching technical decisions.

P.C.S INTERNATIONAL PD

THE NORTHWEST'S BIGGEST PD LIBRARY

33 Chapel Green Road

Hindley
Wigan WN2 3LL
0942 521577



FREEPOST

UK ORDERS ONLY

**CREDIT CARDS TAKEN
WITH ORDERS OVER £10.00**

1001 Disk Master v3.0	1055 Agatron Anims 30	1533 NRG A
1002 Crypto Burners	1056 Dexion Tube Pack 8	1534 NRG B
Megademo 2	1057 Dexion Music Disk	1535 Heavy Death Demo
Faces 1 (16)	1058 High Voltage Mega Demo	1548 Talking Colouring Book
1020 Master of the Town (game)	1059 Coding Exhibition 40	1549 Escape from Jovi III Game
1021 Passion Show 2. 1Meg	1060 Gate Music Disk 1	1550 Game Over Music 2
1027 Time Warp Game Demo	1061 Northstar DDT Demo	1551 Game Over Music 3
1028 Electric Train (Game)	1062 Drifters Music Disk	1552 Chaos Rock 1Meg
1029 Andreas Music Disk 1	1063 Turrigan 2 Demo	1553 Fenn-Tastic Vol.4
1030 Competition Slideshow	1064 Lettrix (Game)	1554 Mac Fields Demos 87
1031 Disney Slides 1Meg	1065 Doom Music Collection 21	1555 Video Clip Animis
1032 NComm	1066 Amos Demo II	1556 Mind Power Music
1033 Star Trekkin A. 1Meg 2 Dr	1067 Cryptic Demo's	1557 Property Market
1034 Star Trekkin disk B	1068 House Samples 1	1558 Digital Marketing Demo Maker A
1035 LSD Pack	1069 House Samples 2	1559 Digital Marketing Demo Maker B
1048 Flash Disk Optimizer v0.3	1070 House Samples 3	1560 Global Trash
1049 Exodus Music Disk	1071 Glidescope Music 4	1561 Telephone Terrors vol.1
1050 Digital Denon	1072 Frog Animation 2. 1Meg	1562 Standard Orbit Slides
1051 Anthrox Demo Comp	1501 Teenage Turtles Disk J	1563 Dynamite GFX 3
1052 Magnetic Beats 3	1502 Headline Fonts	1564 Sound FX Vol. 1
1053 Magnetic Beats 2	1507 Direct Action v2.01	1565 Tools Of The Trade Anim
1054 Ultragraphic Animations	1520 Shapes Game	1566 Over Load
	1521 The Simpsons Slides	1567 Nominations 133
	1527 Leeds Slides	1568 Nominations 134
	1528 Thriller Slides	1569 Nominations 135
	1529 Ensignia Mayhem	1570 Pneumatic Weapon
	1530 Musical Massacre	1571 Surfin Nicaragua III
	1531 Digital Debussy	1572 Dynamite Beats 3
	1532 Mind Blasting Tracks 3	

AVAILABLE NOW

AMOS	1 - 197
AMOS LICENSEWARE	1 - 21
AMICUS	1 - 26
AMIGOS	1 - 12
FISH	160 - 470
PICS PD	1 - 300+
T-BAG	1 - 49
SD - DISCS	1 - 40
S.N.A.G.	1 - 11

() Denotes the number of disks
* Requires 1Mb or more

NEW PD PRICES

1-5 disks	£1.50
6-10 disks	£1.25
11-20 disks	£1.00
21+ disks	£0.89
Amos Licenseware	£3.50
Cat disk.....	£1.00

Europe add 25p
Rest of the world add 60p

All cheques payable to:
P.C.S International.
We accept credit cards, cheques, postal orders and eurocheques.

P.C.S. INTERNATIONAL PD
FREEPOST WN5 157F
HINDLEY, WIGAN, LANCs WN2 3BR

This is only a small collection of our vast range of Public Domain software. If you have any PD Disks that we do not have we will gladly swap on a one to one basis. We have demos, utilities, business, comms and animation. If you want any PD disk that is not advertised then give us a ring on the above number. Please note to all our customers we now offer a FREE Post service on all orders. Modem users you can E-mail us on Prestel 942521577 or Telecom Gold MIK: 3311. Catalogue Disk £1.00.

SPECTRUM

- Battle Command shows there's life in the Speccy
- The best adventures of the 80s in one package
- The deep, dark mysteries of SCREEN\$ explained

COMMAND PERFORMANCE

If you're looking for the kind of complex mega game 16-bit owners are always raving about and that come in lavish, forest depleting packaging you could do a lot worse than seeking out *Battle Command* from Ocean.

This is the sequel to *Carrier*

Command and plays like an updated version of the old arcade stalwart, *Battle Zone* (remember that?). You're in command of a tank and look out of the cockpit into a nicely depicted solid 3-D landscape populated with enemy tanks, helicopters and even trains. These can all be blasted with a pleasing variety of

weapons as you strive to complete any one of ten separate missions.

Everything moves around at great speed, again proving the Speccy's ability to handle this kind of thing usually thought of as a 16-bit preserve. The different missions means there's lots to do and see for the £10.99 asking price and if battle sims are your thing this is well worth splashing out for.

DIVE IN TO DEEP WATERS

The ever prolific Zenobi Software is at it again. It has just released a huge, pulsating Speccy adventure compilation that's sure to strengthen its claims for world domination.

Deep Waters is the name of a 12 game collection of titles from the acclaimed River Software. Throughout

the 80s the company put out lots of dependable, good quality Speccy adventures that troll bashing types went a bundle on. Now its back catalogue is available in two volumes from Zenobi priced at £4.99 each.

Volume One contains six excellent adventures:

- *The Hammer of Grimmold*, a fantasy quest for a magical hammer.
- *Realm of Darkness*, where you have to recover treasure stolen from vaults of the king's castle.
- *Matchmaker*, an original-sounding game in which you have to make sure the Prince and Princess get to the church in time.
- *The Mutant*, a quest for a monster.
- *Jack and the Beanstalk*, no explanation needed.
- *The Enchanted Cottage*, your chance to become a paid up, professional sorcerer; all you need to do is escape from the cottage of the title and uncover the mystery of the Green Door.

If those six aren't enough to keep you occupied to around 2010 or thereabouts there's another half dozen to struggle through on volume two. This is comprises:

- *Davy Jones' Locker*, which puts you at the mercy of the elements and subjects you to some of the worst sea faring puns ever made.
- *The Jade Necklace*, a private dick style game.
- *The Lifeboat*, another lost at sea type adventure
- *The Cup*, which requires you to solve

Continued on next page ►

CHOCKS AWAY, GINGER! WHAT A SIMPLY SPLENDID BIGGLES HACK

This week's hack is for the old but worthy(ish) *Biggles*. It's quite hard to get working so pay attention and follow these instructions:



• Become a super flying ace just like Biggles here with the help of our high flying hack.

- 1) Type in the program below
- 2) Run the program, which should then return with the 9 STOP statement message.
- 3) Now delete the program lines that put the coded hack into memory, so delete lines 5-45.
- 4) Now type RUN and start the Biggles tape from the beginning.

And there you have it. Respect is most definitely due to Jazz Oliver from Brighton who was clever enough to write the hack and kind enough to send it in. Thanks!

5 CLEAR 32768

7 FOR n=65289 TO 65311 :

READ A: POKE n,a: NEXT n

10 DATA 0,017,19,91,1,10,0,
237,176,195,0,91,175

20 DATA 50,178,207

30 DATA 50,134,216

35 DATA 195,193,93

38 STOP

40 REM Run and delete lines 5
- 45

50 REM From deletion RUN
again

60 CLEAR 24013 : LOAD "" CODE
: POKE 65286,33: POKE
65287,22: POKE 65288,255 :
PRINT USR 65248

TESTBOOM Ltd.

PC Compatibles

286/16 from **£630**

386SX/16 from **£880**

386DX/25 from **£1100**

486 prices too volatile P.O.A.

All above 40Mb HD MVGA DOS 4.01

For all your 16 Bit requirements try me for the best quotes.

520 STE **P.O.A.**

1040 STE **P.O.A.**

TT2, 408 **P.O.A.**

Amiga 500 **P.O.A.**

TOTAL SOLUTIONS PROVIDED FOR ALL H/W

Prices valid for 28 days after publication date.

TESTBOOM Ltd. 9 Railway Road, Ormskirk, Lancs. L39 2DN

Weekends or After Hours

Tel: 0695 571605

Tel: 0695 579106

Fax: 0695 571606

Please Ring Before Calling.

Prices do not inc. VAT and Delivery.

a perplexing mystery too complicated to go into details about here

- *The Challenge*, a tribal adventure with you trying to become chief.
- *The Witch Hunt*, which is fairly self explanatory really.

All River's games are neatly constructed, well programmed adventures with zillions of well thought out puzzles to solve.

At £4.99 each these two volumes of *Deep Waters* represent excellent value for money and should bring a contented glow to the countenance of any Speccy adventure fan.

Get hold of them (and loads of other high quality adventures) from Zenobi Software, 26 Spotland Tops, Cutgate, Rochdale, Lancashire.

TOMMASSO TECH TIP

Good old Adam Tomasso of Carrbridge has sent in another one of those tech tips he's so adept at discovering. This time he's got something to tell us about the SCREEN\$ function:

"Here is a tip you might not know about the SCREEN\$ function. For example you could type:

```
PRINT AT 11,16; "ADAM"
```

and then:

```
PRINT AT 0,0;SCREEN$(11,16)
```

"This would print my name on the screen at line 11, column 16 and then read the position of it and reprint a copy at line 0, column 1.

"That is the normal use. But the way most people don't know is, for example, to bash in:

```
PRINT AT 11,16; "ADAM"
```

and then input the command:

```
SCREEN$(11,16) = "ADAM"
```

then print "yes". Try it."

Will do Adam. Thanks very much for sending it in.

Have you got any Speccy tech tips? Scrawl them down on a bit of paper and send them to me, Robin Alway, at the Spectrum Column, *New Computer Express*, 30 Monmouth Street, Bath BA1 2BW.

Also welcome at the same address are game hints and pokes, comments, criticisms, review software, fanzines or anything else remotely Speccy related. Send 'em all in.

SPECCY SERVICE

Got a sick Speccy? Then you might be interested in getting hold of a service manual for the entire Sinclair range which includes all sorts of tech info and circuit diagrams.

You can obtain these impressive sounding manuals that unveil the arcane mystery of the Speccy's insides from Combined Precision Components Ltd, 194-200 North Road, Preston, Lancashire PR1 1YP. Thanks again to Adam Tomasso for supplying this vital snippet of info.

Robin Alway

PC

- A strange alliance: Apple and IBM swap programs
- (Almost) all you'll ever need to know about DOS 5
- Two official biographies of Liesure Suit Larry

IBM AND APPLE IN BED

Men in black suits and dark sun-glasses from IBM and Apple met in Armonk, New York recently. The aim of the meeting, believe it or not, was to sort out a possible agreement through which these long-time competitors would share portions of their core technologies. No, seriously.

Each company is interested in getting its technology to run on the other's platform. Apple is offering IBM *Publish and Subscribe*, *QuickTime*, *AppleTalk* and an unreleased object-oriented operating system that is part of a project code-named Pink.

For its part, IBM is offering portions of OS/2, such as *Named Pipes*, its RISC Powerchip and its entire suite of networking protocols.

As they say, wonders never cease.

WINDOWS ON SPEED

Alpha test versions of Windows 3.1 are reported to contain a new caching utility to make DOS applications run faster by bypassing DOS and the PC's BIOS chip. Excellent news, indeed.

(However, let me temper that with caution. Some independent software

companies think that bypassing those interfaces is reckless and could damage users' hard disks.)

Beta copies that developers should have received by the time you read this will contain the new utility - *FastDisk* - which works in 386 Enhanced mode to speed virtual memory paging to and from

the hard disk. *FastDisk* communicates directly with the PC's hard disk controller so that all disk activity is handled in protected mode.

NORTON'S DESKTOP

Symantec has announced *Norton Desktop* for Windows, a Windows 3.0 package that provides file management and data protection utilities. The package includes a collection of utilities that replace Windows' File Manager and Program Manager capabilities for faster and more streamlined file management. More news next week.



TERRABYTE

TO ORDER: SEND CHEQUE/P.O./ACCESS NO./ BARCLAYCARD NO. TO:

Terrabyte Source memory at Commodity Prices. Prices can change without notice

THE MEMORY PEOPLE

64, CHAPEL WAY, BOTLEY

OXFORD OX2 9LX

TEL: 0865-794848

FAX: 0865-728761

Other Memory Upgrades Available: IBM, AST, ZENITH, COMPAQ, NEC, APPLE, AMIGA, EPSON, HP, OLIVETTI, SUN, NEXT, AMSTRAD and many more.

★ SPECIAL OFFER ★

**BUY 4Mb OF 80n/s SIMMS
>> FOR ONLY £120.00 <<
FOR THIS MONTH ONLY**

TOSHIBA LAPTOP MEMORY

T1000se	2Mb kit	MT8312	£175.45	T3100sx	4Mb kit	MT8310	£253.19
T2000sx	4Mb kit	MT8314	£395.00	T3200sx	2Mb kit	MT8307	£104.30
T2000sx	8Mb kit	MT8315	£722.00	T3200sx	4Mb kit	MT8309	£253.19
T1200xe	2Mb kit	MT8305	£105.65	T3200	3Mb kit	MT7137	£170.75
T1600	2Mb kit	MT8302	£109.45	T5100	2Mb kit	MT8301	£98.95
T3100e	2Mb kit	MT8341	£93.40	T5200/8500	2Mb kit	MT8304	£98.95
T3100sx	2Mb kit	MT8308	£93.40	T5200/8500	8Mb kit	MT8313	£555.00

MATHS COPROCESSORS

80287-10Mhz	£68
80287-12Mhz	£75
80387SX-16Mhz	£86
80387SX-20Mhz	£99
80387DX-20Mhz	£149
80387DX-25Mhz	£149
80387-DX-33Mhz	£149

BUY YOUR MEMORY AT TRADE PRICES!

***EXPRESS DELIVERY
*5 YEAR GUARANTEE!!**

SALES HOTLINE

0865-794848

INDUSTRY STANDARD DRAM MODULES

DIL RAM

Standard memory chips

	70ns	80ns	100ns
64Kx1	-	1.00	0.98
64Kx4	-	1.40	1.24
256Kx1	-	1.25	1.19
256Kx4	-	3.40	3.25
1Megx1	4.09	3.40	3.15
1Megx4	-	18.00	-

"VIRUS FREE" The 100% Solution - PHONE NOW!

SIP's & SIMMS's				
	60ns	70ns	80ns	100ns
256Kx9	15.00	13.50	11.50	10.25
1Megx9	40.00	34.50	32.00	-
4Megx9	-	-	157.00	-

IBM PS/2 - PLEASE RING FOR DETAILS.

I/O CONTROLLER CARDS

8 BIT 2S, 1P, 1G	£11.25
16 BIT IDE 2FDD, 2HDD	£13.20
16 BIT IDE 2FDD, 2HDD, 2S 1P, 1G	£27.30

GRAPHICS CARDS

TRIDENT 16BIT 1Mb S.VGA	£85
(1024 X 768 256 COLOURS)	
TRIDENT 16BIT 512Kb S.VGA	£75
(1024 X 768 IN 16 COLOURS)	
(EXPANDABLE TO 1Mb)	
OAK 16BIT 256Kb VGA	£45

FLOPPY & HARD DISKS

1.44Mb 3.5" FDD	£46
1.2Mb 5.25" FDD	£48
SEAGATE	
ST 157A 44Mb	£160
ST1102A 84Mb	£270
ST1144A 125Mb	£340
ST1162A 143Mb	£470
ST1201A 177Mb	£520
ST1239A 211Mb	£550
ALL DRIVES STATE FORMATTED CAPACITY	

HP LASERJET MEMORY

1Mb	£69.75
2Mb	£99.95
4Mb	£175.50

EXPANDED MEMORY

EVEREX BOMBSHELL

Everex Maxi Magic (XT-8 bit)			
512K	1Mb	1.5Mb	2Mb
£68	£90	£108	£125
Everex Ram 3000 (AT-16 bit)			
1Mb	2Mb	3Mb	
£105	£140	£180	
Everex Ram 8000 (AT-16 bit)			
2Mb	4Mb	6Mb	8Mb
£250	£325	£400	£475

**ALLOW 7 DAYS
FOR DELIVERY**

**PHONE US WITH YOUR
ORDER 24 HRS**

ALL PRICES EXCLUDE P&P + VAT

FULLY POWERED MOTHERBOARDS

RAM	386sx-16	386sx-20	386sx-25	386sx-33	486-25
0K	235.15	276.50	425.85	560.25	1225.15
1Mb	267.15	308.50	452.85	592.25	1289.15
2Mb	299.15	340.50	489.85	624.25	1321.15
3Mb	331.15	372.50	521.85	656.25	1353.15
4Mb	361.15	402.00	551.85	686.25	1383.15

>> Buy board with 4Mb RAM and get Co-Proc at Cost <<
>> ie. 386sx-16Mhz with co-proc at £441.15 <<

It is intended to enable DOS applications under Windows to run in the background and to be dynamically spooled to and from the disk in 4K pages in 386 Enhanced mode. More news when it happens.

DOS 5: THE Q&A SESSION

It's another new series! DOS 5 is here and, I'll bet, it'll provoke one or three questions. So if you have a problem with DOS 5 write to me and I'll do my best to sort you out. For now, here are the top ten questions asked by the concerned, worried and plain frantic.

Q How much memory does it free?
A Basically, around 621K

Q Will it run on my machine?
A Yes (if not ring Microsoft).

Q How much hard-disk space do I need?
A 3.1Mb, although it's possible to get by with 600K.

Q How much memory do I need?
A 512K - to run the setup program.

Q Will it install on DR-DOS?
A It should do.

Q Why can't I boot off the Setup disk?
A Because DOS 5 is an upgrade running on top of the older DOS, not as a separate entity.

Q What if I have a 8086 or my 386 has a memory manager? Why should I bother buying DOS 5?

A DOS 5 is safer, easier to use, has on-line help, includes task swapping, plus undelete and unformat options. Do yourself a favour.

Q Should I use the new version of EMM386 with Win3?
A Yes, this version supersedes the older Win3 version.

Q Will my partitioned hard disk (created with Ontack Disk Manager) work under DOS 5?

A Yep, most third party disk managers are compatible.

Q Will my network run under DOS 5?
A Should do. Quite a few were tested and work. Examples include MS Net, LAN Manager, PC Lan, Novell Netware, Sitka TOPS, etc, etc.

BOOK OF THE WEEK

Hang on it's... it's yet another new series! How does he do it? Answers on a postcard, please.

Yes, folks, this week sees the first in my book of the week series that will cross the seven seas of computing covering utilities, games, packages, languages - you name it, in fact.

First on the list is a bumper double bill in recognition of the new VGA version of that well known animated graphic adventure game, *Leisure Suit Larry 1* and the new *Larry 5* to appear 'soon'.

Published by Compute! and Abacus these worthy tomes are *The Official Book of Leisure Suit Larry* and *The Larry Story* respectively.

The former, written by Ralph Roberts, has the worthy help of the Larry inventor, Al Lowe, to guide him through the mire.

It is a more general book than Abacus's example giving you the story behind and the making of Larry, a resumé of Sierra (the publisher of the game) an absolutely hilarious interview between Al Lowe and Leisure Suit Larry himself.

Different computer versions are discussed then general hints are given for all of the three games. Finally, the answers to the quizzes at the beginning of the games are given.

The Abacus book also gives these quiz answers but in a more presentable form. Although a little smaller, it is a more 'quality' production (better paper, clearer design) but concentrates more upon the hints and tips and so misses some of the more interesting sidelines offered by the Compute! book.

If you just want a good hint book then the Abacus volume (156 pages at

£13.95) has the edge. For a more appreciative Larry experience, full of humour and insight catch the Compute! book (£11.95 for 228 pages).

Both books are available in the UK via bookshops, computer stores or from Computer Manuals.

Contact Computer Manuals on 021-706 6000.

Paul Rigby



• Leisure Suit Larry goes literary: The star of umpteenth games now has not one but two books chronicling his rise to fame.

★ ATARI ST ★ ATARI ST ★ ATARI ST ★ ATARI ST
A brilliant offer for readers of New Computer Express!

Devpac ST 2

FROM HISOFT ONLY £44.95

Devpac ST version 2 is widely regarded as the most powerful assembly language development system for the Atari ST. It incorporates a debugger, stand-alone assembler and a fast linker

IT INCLUDES:

- **GenST** Assembler is a high-performance, full-featured, two-pass Motorola standard macro assembler at up to 75,000 lines per minute. It has multiple modules and sections, repeat loops and macro calls that may be nested as deeply as memory allows.
- **MonST** Debugger is an advanced symbolic monitor, debugger and disassembler. Now in addition it can offer multiple window display, full expression evaluator, up to 22 significant characters in symbols, viewing of source files and conditional breakpoints.
- **Example Files** of a wide variety including a full GEM type windowing application and an example desk accessory.

The package comes complete with an extensive ring-bound manual plus notes on the various operating system levels and debugging strategies.

Order now by phone from the NCE mail order service or send the coupon to our FREEPOST address.

HOTLINE NUMBER 0458 74011

**SAVE
£15**

DevpacST 2
version 2
Complete Assembler/Debugger System
for the Atari ST Computers

Yes, I would like to order a copy of

Devpac ST 2

Name _____

Address _____

Tel No _____

I would like to pay by Access Visa

Cheque PO

Please debit my credit card

No _____

Expiry Date _____

Tel. No _____

Send & make cheques payable to
Future Publishing, FREEPOST, The Old Barn,
SOMERTON, Somerset. TA11 7BR

MACINTOSH

- Hewlett Packard not guilty of fraud, suggests judge
- Are Macshops the marketing push the Mac needs?
- Quark Express 3 to take full advantage of System 7

MACSHOPS

Rumours are firming up that Apple will start selling the low-end Macs through some form of high-street outlet well before next Christmas.

There are some reports that a trial shop is already in existence, and certainly visitors to Apple's Stockley Park headquarters over the last six months or so have seen a prototype 'Macshop' - a small booth which could be part of a larger retailing operation.

The rumours have been strengthened by speculation that Apple is not creating any new AppleCentres. Suggested retailers are as diverse as Dixons, Comet or W H Smith's.

Whatever, Apple needs to get its act together before the autumn, or it will miss out on what could, if handled right, be a terrific boost to Macintosh sales. The current situation is ridiculous; in many cities, the only place you can officially buy a Mac is at an AppleCentre, which doesn't open on Saturdays.

This means that all the little kiddies who want to persuade Dad to buy them a Mac instead of an Amiga can't even take him to see the kit.

Surely, given that the Mac is the easiest computer to use, it wouldn't be too hard to train sales staff in a department store to sell the damned thing, surely?

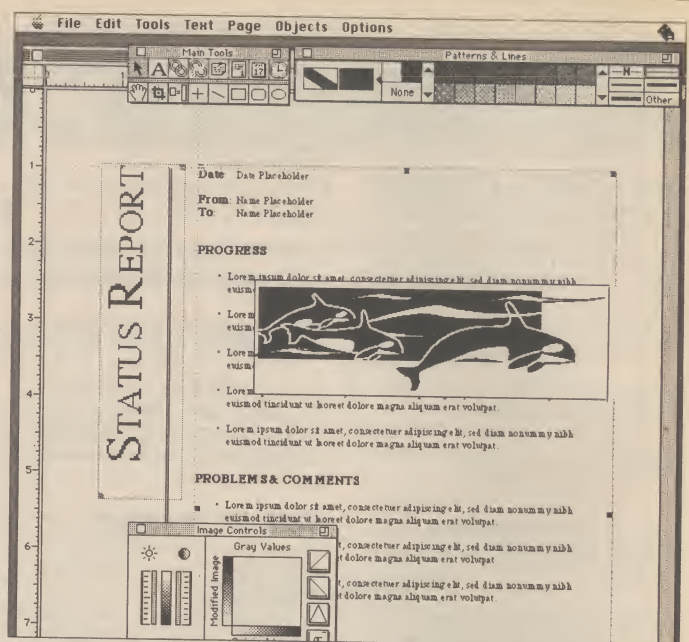
(On the other hand, having just spent 10 minutes in Smith's trying to buy some batteries, perhaps the idea needs some refinement...)

FRAUD CLAIM REJECTED

The judge who is presiding over the hearing between Apple and Microsoft and Hewlett-Packard (over the 'look and feel' of the Mac interface, remember? If not, see Express issue 135 page 6) is said to have announced that he is, "inclined not to allow Apple to accuse Microsoft of fraud".

This relates to a claim which Apple lodged in May this year that Microsoft was guilty of using fraud and coercion in obtaining the licensing agreement in the first place. The judge has also been quoted as saying that it is, "pretty outlandish that Apple discovered this fraud at this late date".

This is not to say that the judge has actually thrown the claim out - even



• Personal Press: Aldus' attempt to capture the low-end Macintosh DTP market is similar to PageMaker in many respects. Could it be the answer to your needs? Find out in a couple of weeks' time when we'll be bringing you a full review.

though it's taken Apple three years from the original case being lodged to make these claims about fraud. But it looks as though Apple's on a hiding to nothing with that particular avenue of complaint.

The judge has put off a decision on Apple's attempts to include Windows 3.0 and HP's NewWave 3 in the case.

SYSTEM 7 NEWS

There is a debate raging at the moment about whether text is slower to scroll when the scrollbars are displayed in the new, super, 3-dimensional effect mode of System 7.

Although many people have provided figures which prove that this

DIGITAL APPLICATIONS

VISA FREEPOST, BASILDON, ESSEX, SS16 4BR Access

CREDIT CARD HOTLINE AND ENQUIRIES:

0268 553963

☆ NEW AMIGA PD TITLES NOW AVAILABLE ☆

PDX 230	Croinics Nowhere Mega Dem	APD007	Quizmaster (arcade quiz)
PDX231	Dominoes (the game)	APD008	Database Manager (great little database)
PDX232	Casino Games (various)	APD009	Black Belt (karate arcade)
PDX242	Talking Paint Book (for children)	APD013	Deadline (arcade)
PDX243	Merv The Merciless (arcade)	APD016	Fruit Machine (best available)
PDX244	D-Copy V1.0 (best backup available)	XXX001	Party Games 2 (adults only please)
APD001	Arcadia (arkanoid clone)	XXX012	Mayfair Collection (adults only)
APD003	Cross Fire (arcade)	PDX194	Kefrens Boot (make mouse driven menu's)
APD004	Balloonacy (arcade)	APD002	Amos Paint
APD005	Tile Trial (arcade)		
APD006	Master Race (arcade quiz designer)		

Official stockists of Amos licenceware (£3.50 per disk), Fred Fish and TBAG libraries available. All latest titles. Disks cost £1.50 each fully inclusive. Same day despatch.

Send your cheques postage free or phone our credit card hotline (minimum order 2 disks for credit card orders)

Free catalogue with every first order (updated free monthly)

Hours of business 9.30 - 6.00 Mon - Fri

SUPER SUMMER SAVERS FROM BCS

AMAZING DEALS

3 1/2" DS/DD

LOWEST PRICES

Bulk Buyers 2 for 1 disk guarantee

50 3.5" DS/DD	£21.00
100 3.5" DS/DD	£33.00
150 3.5" DS/DD	£49.00
200 3.5" DS/DD	£62.00
400 3.5" DS/DD	£125.00
500 3.5" DS/DD	£137.00

Price includes VAT & P&P

100 3.5" DS/HD
£61
inc. VAT & p&p

5.25" DS/DD...21p
5.25" DS/HD...39p

3.5" DS/HD
60p

SONY BULK
37p

Philips CM8833
MKII monitor
£205
Now in stock

20 Sony
branded + bo:
3.5" DS/DD
£14

100 Sony
bulk inc. VAT
& p&p
£40

TDK 3.5" HD
box 10
£10.50

Free labels

Posso 150 cap
stackable box
£15.00

5 1/4 50 cap box£5.10
100 cap box£5.90

Disks & boxes 2 for 1 disk guarantee

50 disks + 80 cap box	£24.00
100 disks + 80 cap box	£36.00
150 disks + 80 cap box	£51.00
200 disks + 2 x 80 boxes	£65.50
400 disks + 4 x 80 boxes	£138.00
500 disks + 5 x 80 boxes	£155.00

Price includes VAT & P&P

3 1/2 40 cap box£4.10
80 cap box£4.50

Star LC-200 colour printer
£205
now in stock

AMIGAS

Amiga 500	£299	First Steps	£510
Screen Gems 1Mb	£365	Cumana drive	£65
Amiga 1500	£650	1Mb no clock	£28
Amiga 1500 + monitor	£895	1Mb + clock	£31
Class of the 90's	£475		

ATARIS

STE Discovery Pack	£265
Family Curriculum Pack	£365
Turbo Pack	£349
Sega Game Gear	£95.00

ACCESSORIES

Mouse mat	£2.75	Printer lead	£8.50
Zipstick	£11.50	Naksha mouse	£28.00
Jetfighter	£12.50	Dust cover	£5.50
OS Turbo III	£8.00	External drive	£72.00
Cheetah 125+	£8.00	Amiga/Atari mouse	£14.50
1000 labels	£8.00		

Trade/Government/School orders welcome

Add £3.65 p&p, add £4.00 for 3 day delivery, add £8.00 2 day, 10.00 next day (from despatch)
Cheques will be held for clearance. Call or send cheques/postal orders to

Access BCS Ltd, 349 Ditchling Road, Brighton, E. Sussex, BN1 6JJ
Tel: (0273) 506269 or (0831) 279084

cannot possibly be the case, as a subjective observer it certainly appears to be so to me – text seems to take almost twice as long to scroll in some cases. Have any of you Mac users out there come to the same conclusions? If so, or if you can conclusively prove that I'm wrong, let me know.

The first incompatibilities between System 7 and major software packages are beginning to come to light. Quark XPress 3.0, one of the two top desktop publishing packages on the Macintosh, isn't exactly happy with Apple's new operating system.

Although it doesn't actually crash, users of the program under System 7 have reported some anomalies – such as the fact that a PICT saved to the clipboard and then pasted into an XPress picture box will not actually print; at least, not with any regularity.

Beta versions of XPress 3.1 are now in circulation, but the actual product will not ship until the third or fourth quarter of this year. XPress 3.1 will, according to Quark, take full advantage of System 7, offering features such as Publish and Subscribe as well as curing any incompatibility bugs. There should be some other fabby features too, but Quark isn't saying any more at the moment. Watch this space for details...

Also watch this space in the next couple of weeks for a review of *Personal Press*, a low-cost (£199) DTP package from Quark's great rivals, Aldus (creators of *PageMaker*). First impressions are that it is a good package, although with a few limitations.

If you're after a DTP package for your Mac, don't buy one until you've read our in-depth review...

☎ Computers Unlimited, the UK distributor for XPress, can be contacted on 081-200 8282.

☎ Aldus (*PageMaker* and *Personal Press*) is on 031-220 4747.

PRODUCT NEWS

Computers Unlimited has taken over exclusive UK distribution of MainStay products. These include *MacSchedule*, which apparently, "automates the design and creation of Gant-type schedule charts", and the *Classics* package, which includes *Capture*, the best screen-grabbing package available, and

AntiToxin, an anti-virus program.

MainStay products can be purchased through The Software Club, a division of Computers Unlimited.

☎ Telephone 081-205 4548.

Retrospect, the award-winning backup and archiving program, has been updated by manufacturer Dantz Development to be fully System 7-compatible. Version 1.3 apparently increases the maximum archive size to 1 Terabyte (that's 1,000 Gigabytes, although why anyone would want an archive that size is completely beyond me), and provides for full automatic, unattended backup.

Owners of version 1.2 are eligible for a free upgrade; version 1.3 costs

£149, and will be available from July.

☎ Give Principal Distribution a ring on 081-677 7631 for more details.

MacSel has signed an agreement to become the exclusive UK distributor of PowerUp! Software's new Macintosh products. Already well-known in the DOS marketplace, PowerUp's Macintosh range includes *Fast Forms*, a package which allows the user to easily design and complete forms of all kinds, and *Letter Writer Plus* which is, according to its new distributor, "a powerful and easy-to-use letter writing and mail merge desk accessory".

☎ More details from MacSel on 081-568 8866.

Ian Wrigley

POSTCARD FROM AMERICA



After living with System 7 for a couple of months, I've cru my installation methodology (or fixed it in concrete) for users making the transition. If you'll follow my sane and simple plan, you'll be in seven heaven. If not, you'll wind up in a bottomless bit!

RULE ONE: Pretend that you've never seen a Macintosh before. This is more than just a mental exercise, but an important ritual. Use the latest versions of hard disk utility software, and reformat your drive. Lay down a fresh system on the disk, even though the installer program could update your old 6.0x system. You're a new user in a brave new Mac-world.

RULE TWO: Run a "pure" Apple system for at least a week. The depth of the interface should be used and appreciated. It takes time to really get the new features integrated into the unconscious.

Finder enhancing software, popular with former power users, should be avoided. I've only added a screen saver (*After Dark*) and *Super Boomerang* (in the *Now Utilities*) so far, and I was a real

CDEV/Init junkie in previous systems.

Aliases, especially, can be overlooked in a rush to recreate a previous desktop environment.

RULE THREE: Turn off esoteric new features. Don't bother with virtual memory, unless you know what you're doing, or have a specific need. The same applies to 32-bit Addressing and File Sharing. Users suddenly find their system has swollen by many Megabytes, without their knowledge. They scream that System 7 is a memory hog, when they're accidentally "using" a feature. It does want as much memory as you can throw at it, but piggish? Really!

The Calculate Folder Sizes option in the Views control panel device is a notorious for slowing machines down. I don't know if Finder operations are truly slowed, but they certainly appear to be to the subjective eye. Certainly the hard disk has to run around getting the information.

David Morgenstern

The New **ATARI TT** is here!

	R.R.P.	ORION Price
ATARI TT 2	£2349.98	£2099.95
ATARI TT 4	£2702.48	£2400.00
ATARI TT 8	£2937.48	£2600.00

Price complete as shown, including 14" Multisync Monitor & Courier Delivery

Available **NOW** by mail from **ORION**.

Offers apply strictly to orders received before August 31st.



11 Arleigh Court Bangor Co. Down BT19 2YT Telephone: 0247 459716

BCS

TEST
CES

50 cap
le box
5.00

...£5.10
...£5.90

1 disk

...£24.00
...£36.00
...£51.00
...£65.50
...£138.00
...£155.00
P&P

...£4.10
...£4.50

inter

ool orders

00 for 3 day
10.00 next
ch)
clearance.
al orders to

VISA

Road,

1 6JJ
6269
084

ATARI

ST Accessories

SM124 Mono Monitor	£109.99
Megafile 30 Hard Disk	£399.00
Megafile 60 Hard Disk	£529.95
External 3.5" Disk Drive	£69.00
Golden Image Hand Scanner	£199.00
Forget-Me-Clock II	£19.95
ST Monitor Switch Box	£14.95
STE Stereo scart lead	£12.99
STFM scart lead	£12.99
STE Stereo MKII 8833 lead	£12.99
STFM MKII 8833 lead	£12.99
Joystick/Mouse extension lead	£4.99
Replacement Mouse lead	£3.95
Standard Parallel lead	£5.95
Internal PSU for STFM/E	£100.00
Replacement ST keyboard	£100.00
Mouse Mat	£3.50
2 x Midi cables	£6.99
14 pin din plug (ST disk drive)	£2.30
14 pin din socket (ST disk drive)	£3.00
13 pin din plug (ST monitor)	£2.00

Protar Hard Drives

* NEW * NEW *

We are now official stockists of the latest in high quality / low price ST hard disk drives from Protar. All Protar hard disk drives come with a full 12 month REPLACEMENT warranty (no lengthy repairs!), a DMA through port, device number switching and Protar hard disk drives are the only manufacturer with the ATARI COMPATIBILITY seal of approval.

Progate 20Mb Hard Disk	£346.24
Progate 40Mb Hard Disk	£399.50
Progate 40Mb with Cache	£470.00
Progate 44Mb Removable	£611.00
Progate 60Mb Hard Disk	£493.50
Progate 60Mb Tape Streamer	£581.63
Progate 80Mb Hard Disk	£581.63
Progate 80Mb with Cache	£628.63
Progate 150Mb Tape Streamer	£793.13
Progate 160Mb with Cache	£1234.52
Progate 440Mb with Cache	£1994.41

STE Ram Kits

DIY 1 - 512k upgrade	£29.99
DIY 2 - 2mb upgrade	£89.00
DIY 4 - 4mb upgrade	£159.00

All STE Ram Kits come with instructions and DO NOT require soldering in most machines.

ST Software Packs

Due to high demand sales, we have now run very low on stocks of the ST software packs below. Therefore, please ring for availability before ordering. For contents of the ST software packs - see the listing of ST computer ranges on the opposite page or phone us for details.

Discovery 1 Pack Software	£16.99
Discovery 2 Pack Software	£16.99
Extra Pack Software	£39.99
Tenstar Pack Software	£29.95
Power Pack Software	£34.99
Curriculum Pack Software	£39.95

ST Midi Software

Gajits Sequencer One	RING
Dr.T Tiger Cub	RING
C-Lab * ALL PACKAGES *	RING
Steinberg * ALL PACKAGES *	RING

Atari TT

The amazing 32Mhz TT030 is now available in the following configurations:

2mb ram, 40mb h/disk	£1699.99
4mb ram, 40mb h/disk	£1999.99
8mb ram, 40mb h/disk	£2199.99
Hi res colour monitor	£440.00
19" Hi res mono monitor	£770.80

PRINTERS

ACCESSORIES & RIBBONS

All of our printers come with a parallel cable to suit Atari ST, Amiga and all standard PC etc (other cables available at extra cost - ask for details). All printers carry a full 12 months warranty. We only sell genuine UK stock - we do not offer inferior "grey imports".

CITIZEN

* 2 YEAR WARRANTY *

EXTENDED SPECIAL OFFER! Due to the massive response to our FREE colour kit offer, we have decided to extend the offer so all Citizen Swift 9,24 and 24X printers will continue to come with a FREE colour kit and colour ribbon until stocks last.



SPECIAL OFFER! For a limited period only we are offering a CITIZEN PRINTER STARTER PACK with all Citizen printers. The pack comprises of: 3.5" disk full of printer drivers for the ST, Amiga & PC; 200 sheets of fanfold tractor feed paper; 200 fanfold tractor feed address labels; 5 tractor feed envelopes all for only £12.99 on top of the price of the printer

Citizen 120D + (9-pin)	£139.00
Citizen Swift 9 (9-pin) *FREE COLOUR KIT*	£199.00
Citizen 124D (24-pin)	£209.00
Citizen Swift 24 (24-pin) *FREE COLOUR KIT*	£299.00
Citizen Swift 24X (15" 24-pin) *FREE COLOUR KIT*	£399.00

CITIZEN RIBBONS

120D / Swift 9 Black Ribbon	£4.50
124D / Swift 24 Black Ribbon	£4.50
Swift 9 / Swift 24 Colour Ribbon	£16.00
Swift 24X Black Ribbon	£7.50
Swift 24X Colour Ribbon	£18.00

CITIZEN ACCESSORIES

124D / Swift 9 & 24 Semi Auto S/Feeder	£39.99
124D / Swift 9 & 24 Automatic S/Feeder	£79.99
Swift 24 Font Cards (6 different) each	£35.00

star

TELESALES (0903) 700714
NOW OPEN FROM
10.00AM TO 12 MIDNIGHT
MONDAY TO SUNDAY

Star LC10 Mono (9-pin)	£155.00
Star LC200 Colour (9-pin)	£220.00
Star LC24-10 Mono (24-pin)	£215.00
Star LC24-200 Mono (24-pin)	£260.00
Star LC24-200 Colour (24-pin)	£295.00
Star XB24-10 Mono (24-pin)	£475.00
Star XB24-15 Mono 15" (24-pin)	£600.00

STAR RIBBONS

Star LC10 Black Ribbon	£3.50
Star LC10 Colour Ribbon	£5.20
Star LC200 Black Ribbon	£5.00
Star LC200 Colour Ribbon	£10.00
Star LC24-10 Black Ribbon	£4.75
Star LC24-200 Black Ribbon	£7.50
Star LC24-200 Colour Ribbon	£11.00

Other Printers

Canon BJ10E Portable Bubble Jet	£289.00
Hewlett Packard Desk Jet 500	£399.00
Panasonic KXP 1124i (24-pin)	£279.00

ACCESSORIES

Canon BJ10E Sheet Feeder	£59.99
HP Desk Jet Epson FX Emulation Card	£59.99

RIBBONS / INK

Canon BJ10E Ink Cartridge	£19.99
HP Desk Jet Ink Cartridge	£14.99
Panasonic KXP 1124i Ribbon	£9.00

LASER PRINTERS & PLOTTERS AVAILABLE
ON REQUEST - PLEASE RING US WITH
YOUR REQUIREMENTS

AMIGA

Accessories

A500 512K ram upgrade + clock	£29.99
A500 15Mb ram upgrade	£99.99
A590 20Mb hard disk drive	£284.95
External 3.5" Disk Drive	£65.00
Golden Image Hand Scanner	£199.00
Amiga Stereo Scart Lead	£12.99
Amiga 8833 MkII Lead	£12.99
Mouse Mat	£3.50

Amiga A1500 ONLY

Hard Disks and Ram Upgrades

Amiga A1500 - 8Mb Ram Boards:	
Populated with 2Mb	£199.00
Populated with 4Mb	£275.00
Populated with 8Mb	£425.00

Amiga A1500 - Auto-booting Quantum hard disk drives:	
(FREE fitting when bought with an A1500)	
52Mb with controller	£349.00
104Mb with controller	£499.00

8833

Colour Monitor

The Philips 8833 MkII is the perfect colour monitor for ST and Amiga owners. With its stereo sound and super quality picture it really shows off the full capabilities of the STE and the Amiga. The Philips 8833 MkII also comes with 12 months on site warranty FREE!

8833 with STFM cable	£249.99
8833 with STE cable	£249.99
8833 with Amiga cable	£249.99

LYNX

Games Console

The Atari Lynx is a superb full colour hand held, games console using plug-in cartridge games. The Lynx can be used with either batteries or a mains power supply unit. All our Lynx machines come with instructions and are available with or without mains power supply unit and comlynx cable.

Lynx Console Only	£79.99
Lynx Console + PSU	£84.99
Lynx Console + PSU + Comlynx	£89.99

Carrying Case	£14.99
Carrying Pouch	£11.99
Car Power Adaptor	£9.50
Sun Visor/Scratch Shield	£6.99
Mains Power Supply	£14.99

ALL GAMES £19.99 EACH

Blue Lightning	£23.99
Chips Challenge	
Gates of Zendoc	
Klax	
Paper	
Road	
Ryga	
Slime World	
Zarlor Mercenary	
Calif	
Class Pacman	
Rampage	
Robo Squash	
Shanghai	
Xenophobe	

WARBIRDS ONLY £23.99
NOW IN STOCK

ATARI STE PACKS

ALL ATARI ST PRICES INCLUDE VAT AND UK DELIVERY. ALL PRODUCTS CARRY A FULL 12 MONTH WARRANTY. PLEASE RING US BEFORE ORDERING TO CHECK STOCKS AND CURRENT PRICES.

	512k	1mb	2mb	4mb
ATARI STE STANDARD PACK. consists of the computer with mouse, tv lead, manual and all connecting leads etc. The Standard Pack is supplied with NO software.	£269.00	£299.00	£329.00	£409.00
ATARI STE DISCOVERY 1. consists of the Standard Pack and STOS, First Basic, NeoChrome and 4 games (Carrier Command, Space Harrier, Outrun, Bomb Jack)	£279.00	£309.00	£339.00	£419.00
ATARI STE DISCOVERY 2. consists of the Standard Pack and First Basic, ST Tour, NeoChrome and 4 games (Dragons Breath, Super Cycle, Indiana Jones, Anarchy)	£279.00	£309.00	£339.00	£419.00
ATARI STE TURBO. consists of Standard Pack and STOS, Hyperpaint II, Music Maker II, First Basic and 8 games (Indiana Jones, Dragons Breath, Blood Money, Impossible Mission II, HKM, Anarchy, Outrun and Supercycle).	£289.00	£319.00	£349.00	£429.00
ATARI STE TENSTAR. consists of Standard Pack and Asterix, Chess Player 2150, Drivin Force, Live + Let Die, Onslaught, Pipemania, Rick Dangerous, Rock n Roll, Skweek and Trivial Pursuit II.	£289.00	£319.00	£349.00	£429.00
ATARI STE CURRICULUM. consists of Standard Pack and also 3 levels of educational software (from 5 yrs to 50 yrs !!!), a word processor, a spreadsheet, a database, HyperPaint and Music Maker II software.	£299.00	£329.00	£359.00	£439.00

AMIGA PACKS

ALL AMIGA PRICES INCLUDE VAT AND UK DELIVERY. ALL PRODUCTS ARE UK STOCK AND CARRY A FULL 12 MONTH COMMODORE WARRANTY. PLEASE RING US BEFORE ORDERING TO CHECK STOCKS AND CURRENT PRICES.

AMIGA A500 BASE A500 computer, mouse, tv modulator, manuals, Workbench, etc supplied 'bare' with no games software * STOCKS VERY LIMITED - SO HURRY *	£299.00
AMIGA A500 BASE 1MB A500 computer with extra 512K ram expansion, mouse, tv modulator, manuals, Workbench, etc supplied 'bare' with no games software. * OUR RAM EXPANSIONS DO NOT INVALIDATE YOUR WARRANTY *	£325.00
AMIGA A500 ASTRA A500 512k computer, mouse, tv modulator, manuals, Workbench, etc supplied with 10 great software titles (see A500 1MB ASTRA pack below for details)	£325.00
AMIGA A500 1MB ASTRA Amiga A500 computer, 512K Ram expansion with clock and battery back-up, mouse, tv modulator, manuals, Workbench etc disks, plus the ASTRA 10 games pack including the following games : Datastorm, Dungeon Quest, E Motion, Grand Monster Slam, Kid Gloves, Powerplay, RVF Honda, Shuffle Puck Cafe, Soccer and Tower of Babel	£350.00

NEW AMIGA 1500 PACKS !!

	1mb	3mb	5mb	9mb
AMIGA A1500 BASE A1500 computer with 2 x 3.5" 880k disk drives built in, and a mouse. The A1500 base pack is supplied with no software.	£599.00	£795.00	£875.00	£1000.00
AMIGA A1500 SOFTWARE consists of A1500 base pack and Platinum Works, D Paint 3, Populous, Simm City, Battle Chess, Their Finest Hour and 2 books	£655.00	£850.00	£930.00	£1055.00
AMIGA A1500 BASE 52MB consists of A1500 base pack and fitted 52mb auto booting hard disk drive.	£925.00	£1120.00	£1200.00	£1325.00
AMIGA A1500 SOFTWARE 52MB consists of A1500 software pack and fitted 52mb auto booting hard disk drive.	£980.00	£1175.00	£1255.00	£1380.00
AMIGA A1500 BASE 104MB consists of A1500 base pack and fitted 104mb auto booting hard disk drive.	£1075.00	£1270.00	£1350.00	£1475.00
AMIGA A1500 SOFTWARE 104MB consists of A1500 software pack and fitted 104mb auto booting hard disk drive.	£1130.00	£1325.00	£1405.00	£1530.00

OUR TELESales LINES
ARE MANNED BY TRAINED
STAFF AND NOW

**OPEN 7
DAYS A
WEEK!!**

**REMEMBER, WE ARE OPEN
FROM 10.00 AM TILL 12.00
MIDNIGHT EVERY DAY!!**

IF YOU WISH TO PLACE AN ORDER THEN PLEASE SEND YOUR CHEQUES,
BANKERS DRAFTS, POSTAL ORDERS, CASH ETC. TO :

**BEST PRICES (DEPT NCE), UNIT A, GRAFTON PLACE,
WORTHING, WEST SUSSEX, BN11 1QX**



OR USE YOUR ACCESS OR VISA AND RING OUR
TELESales ORDER HOTLINE AT ANYTIME BETWEEN
10.00 AM AND 12.00 MIDNIGHT, MONDAY TO SUNDAY,
AND SPEAK TO ONE OF OUR FULLY TRAINED STAFF ON :

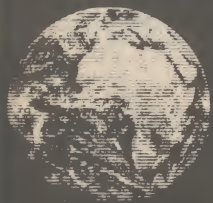
(0903) 700714



All prices include 17.5% VAT and free UK delivery (average 4 - 5 days) unless otherwise stated. All prices / specifications / special offers are subject to change without notice. Goods usually despatched same day when cleared payment is received before 2pm. Personal cheque clearance takes 7 days. Please make cheques/PO's out to BEST PRICES. Mail order only. No callers please. ADD £200 INC. VAT FOR NEXT WORKING DAY UK DELIVERY FOR ORDERS PLACED BEFORE 2 PM

BEST PRICES MAIL ORDER - OUR TELESales LINES ARE OPEN FROM 10.00AM TILL 12 MIDNIGHT - 7 DAYS A WEEK !!!

WHOLE WIRED WORLD



Steve Gold reports on maths coprocessors on the cheap, credit card software for PC users, the launch date for the Super-Famicon, even faster Smartmodems and other exciting developments coming over the international modem lines

MATHS COPROCESSORS FALL TO SENSIBLE PRICES

Intel and Cyrix, two of the computer industry's major chip suppliers, have slashed the prices of their respective maths coprocessor chipsets for PCs.

The reason for the price cuts? According to Intel, the first company to cut its prices, maths coprocessor prices are perceived as being too high compared to continually falling PC prices. Both companies have also admitted that the maths coprocessor chips are a lot cheaper to produce, now that their respective R&D costs have been covered. This perhaps explains the size of the price cuts, which amount to two-thirds in some cases - an Intel 33MHz 80386 coprocessor, for example, drops from \$994 to \$299.

The price cuts are likely to take some time to filter through to UK suppliers but, in the meantime, if you want one, it may pay you to call Intel in the US on 0101-408-765-8080 to check pricing.

ACCESS YOUR CREDIT CHARGES

Most PC users will be aware that you can balance your bank account using suitable software, but did you know that you can plan your credit card payments as well? Good Advice Press is offering its *Banker's Secret Credit Card* software

Notebook PCs are nothing new, but how about a seven pound unit that features a massive 60Mb hard disk? Tandy's 3810HD unit has just been released in the US and is based around a fast (20MHz) 80386SX microprocessor driving 1Mb of RAM. All the usual notebook features are available - high-res backlit LCD screen and serial/parallel ports, as well as some sophisticated power-saving software to spin the maximum amount of useful time from the rechargeable battery pack.

The price of the new notebook? An interesting \$3,299 - about 20 per cent less than the heavier competition with the same specifications. So when can we expect the machine to be released in the UK? Tandy UK's official line is that not all US products are released in the UK. I'd expect this particular machine, however, to be available later in the summer. In the meantime, there's always the US mail order companies.



• Tandy's notebook PC has now been updated. The new Tandy 3810HD weighs in at only seven pounds.

for just \$25. The package allows you to enter how much your credit cards charge for interest and annual fees.

Using this information, along with statement dates etc., the package then tells you which card to use when, and how to save money on interest by making payments from your salary as soon as it reaches your bank account.

You could work all this out for yourself, but the publishers reckon that the package will pay for itself within a few months, so now is a chance to make your PC start paying for itself.

Contact: Good Advice Press, Box 78, Elizaville, NY 12523, United States. Tel: 0101-914-758-1400 Fax: 0101-914-758-1475.

US STUDENTS FINED FOR VIRUS

Three Charleston high school students have been suspended and ordered to pay \$5,000 in restitution after they were found to have inserted two computer virus programs on to their school's computer network. According to school officials, the virus programs caused havoc on the network of 150 PCs, deleting files en-masse. Fortunately for the school - and the students - most of the files had been backed up.

As a result, school officials have concluded that the insertion of the virus programs was an act of stupidity on the part of the students rather than malicious. Clinton Giles, vice principal of Capital High School, told the US press that the students "...were not trying to destroy the system. They took a few liberties that had not been extended and created problems that were beyond their wildest expectations". Greg Bailey, a solicitor for the Kanawha County school board said that the network was shut down for a week during May and a consultant was hired to remove the virus programs. Bailey said that one of the viruses "... was obtained from a book," while the other was received from a computer bulletin board system.

NINTENDO GETS STROPPY

Hot on the heels of taking legal action against the Far Eastern suppliers of pirate games, Nintendo America is getting serious about US distributors of these games. Last week saw the games machine giant take legal action against US importers, distributors and retailers handling the games, claiming copyright and trademark infringements.

In a statement from its Redmond,

Washington, offices, Nintendo said the law suits have been brought against nine defendants and their businesses, alleging unfair competition among many other things. "These actions arise out of the sale of counterfeit multiple Nintendo video game cartridges," the statement said. This could mean hard times ahead for UK suppliers of counterfeit games cartridges, usually priced way below the official prices. Stock up while you can.

HAYES STEPS UP TO 14,400 BPS

After grabbing a fair slice of the high-speed modem market-place with its Ultra Smartmodem 9600, Hayes has speeded ratings yet again with its Smartmodem 14400, a \$1,199 modem that can whiz data at up to 38,400 bits per second (bps) down the phone line. This incredible data throughput is made possible by the use of V.32Bis and V.42Bis modem technology. The V.32Bis modem chipset whirrs along at 14,400 bps, while the V.42Bis data compression software squeezes data over the modem link.

In a statement from its Atlanta headquarters, Hayes claims that the Ultra 144 "delivers unique connectivity to SNA, X.25 and ISDN networks and supports virtually every modem communication application in mainframe, workstation and personal computer environments." Hayes president Dennis Hayes said that the Ultra 144 is "... ideal for customers who want to be 'first' with new technologies and whose applications require additional throughput."

The Ultra 144, available in the US this August, also features Hayes Autosync for synchronous communications, MI/MIC for support of PABX and security systems, and CCITT V.25bis for synchronous autodialing. ■

SUPER-FAMICON- US LAUNCH IN SEPTEMBER

It's official - Nintendo's Super-Famicon home computer system is being readied for launch in the US this coming September. Nintendo reports that mail orders for the machine are already into the high hundreds. The US name for the Super-Famicon is the Super NES. The machine has become a best-seller on the domestic Japanese market since it was released last November, despite the fact that it is incompatible with the original Famicon computer system.

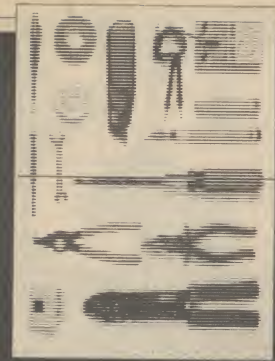
In Japan, Nintendo reports that sales of the \$200 unit have topped the \$2 million mark, a figure it hopes to double by the end of the year, thanks to pent-up demand in the US. So far, Nintendo has sold about 30 million units of the eight-bit version of the Famicon computer system in the US. The machine has almost saturated the market, as



• Nintendo's Super-Famicon will be launched in the US in September.

witnessed by a 29 per cent sales slump during the first quarter of this year.

So when will we see the Super NES on this side of the Atlantic? According to Nintendo Japan, there are no plans to for Europe yet, but sources in Japan suggest that early '92 is a probable launch date in the UK. For now then, it looks like the 'grey market' importers will be the only source of supply of these excellent games machines.



CIRCUIT CITY

We asked you to dig deep for the most outrageous computer tales you could find. David Ward took on dedicated serious industrial machines with his Spectrum and Amiga... and won

David Ward works for electronics giant GEC in a division dedicated to optical technology. This can mean anything from a simple lens to an anti-reflective coating and to a full blown telescope David takes up the story:

Optical coating or, to give it its proper title, optical thin films, is a technique for the improvement of the transmission or reflection of light from glass surfaces. This is achieved by the evaporation of one or more chemical compounds onto the glass within a vacuum chamber. The results are dependent on what compounds are used and their relative thicknesses, usually measured in nanometres. In the early days most coatings consisted of one or two layers, this was quite adequate for simple optical instruments designed for naked eye observations. However, as detectors became available for use in the regions of the electromagnetic spectrum outside the human visual range then new coatings needed to be developed, especially those of a high efficiency and broad bandwidth.

SLIDE RULE TECHNOLOGY

The most important figure for calculations to be made is the optical index. This is the value of how much a glass, or other medium, bends light. Unfortunately red light is bent by a different amount than blue light. Calculations to determine what a particular coating recipe would look like means that the coating effects have to be calculated for a number of wavelengths of light before a graph can be plotted.

My humble Spectrum matched the £4000 Perkin Elmer in performance, and beat it with a colour display too

Teams of boffins complete with slide rules were once employed to perform these tasks. It could take several years just to design a multi-layer coating ... until the computer.

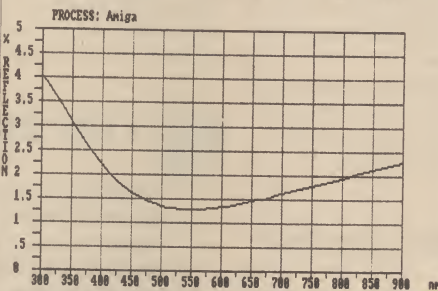
CUSTOM COMPUTING

Back in 1978 the company I work for was owned by Rank Organization, better known for Butlins, Bingo and motorway cafés than high technology equipment and sharp-edge research.

With the arrival of a physicist in-house development began. By 1982 a computer was purchased to act as a dedicated equipment controller and it was found to

PROCESS: Amiga
LAYER(S)-----1
SUBSTRATE REFRACTIVE INDEX IS-----1.5170
INCIDENT MEDIUM INDEX IS-----1.0000
ANGLE OF INCIDENCE IS-----0

LAYER INDEX THICKNESS 1/4 WAVES
1 1.380 99.64 1.0 @ 550



• The output from the Commodore Amiga (above) is streets ahead of the dedicated machine (right) which costs over ten times more and needs a professional operator.

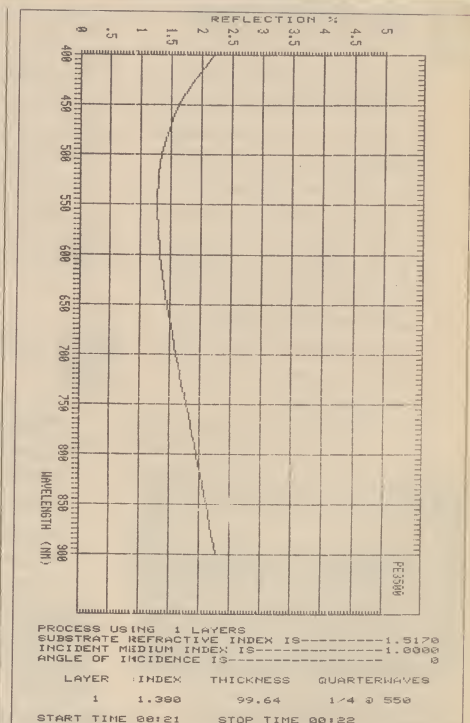
be also suitable for other things, (games!). These were simple text adventures that had been re-written by the manufacturer's boffins from originals played on American University mainframes. It wasn't long before our physicist decided he needed his own thin film design software, and so he set about writing a program for our machine.

Now here is where you might like to know about this super computer. It is a Perkin Elmer 3500, and it cost the company over £4000, including the operating system and *Microsoft BASIC*, twin 360k 5.25" floppies, 48k of memory dropping to 26k with *BASIC* loaded, mono hi-res graphics, all running on a Motorola 68000 chip. This is the machine I learnt to program on.

After about a year the thin film design software was up and running. At the same time I was confident enough to purchase my first computer, the good old rubber keyed Sinclair Spectrum. It soon became apparent that my £129 Spectrum was as good a machine as the Perkin Elmer and I didn't hesitate to point this out. Of course I was laughed at.

SWEET REVENGE

One night I decided to get my own back and so armed with a listing of the program I sat down and began to type it in. After much trial and error I got the thing to work. Imagine the look on their faces when the humble Spectrum matched the £4000 Perkin Elmer in performance, and beat it with a colour display too. When the Spectrum program was compiled it was a clear winner. There was no compiler available for the PE, if there had've been I bet it wouldn't have cost £15!



ON OUR OWN

By now the physicist had left and so coating design was left to the production staff. Some of my colleagues had also bought Spectrums, but my boss had to be different, he chose the C64. One of the Spectrum owners was really hot on design work and spent his evenings working with the Spectrum, transferring the data to the PE for the better graphics printout. He too eventually left, and with the work we were doing beginning to dry up, not much design was taking place.

ENTER THE AMIGA

1987 was the year when the 16 bit machines began to appear more affordable and new orders were in the offing. The PE was getting long in the tooth and other departments were getting new equipment so we thought it was about time that we had a replacement. Perkin Elmer were marketing their model 7500 Professional workstation based on the 68000 chip, a mere snip at £10,000, so we persuaded the company to buy an Amiga 500 and a colour printer instead! ■

WANTED URGENTLY!

Have you got a ZX81 that out performs a mainframe?
Does your Dragon leave a Sun Workstation standing?
Can your calculator out crunch a Cray? Don't just sit there with a smug grin on your face. Let us know. You could get fame, fortune and even dosh. Send your story to David and Goliath, Outrageous Machines, The Attic, 30 Monmouth Street, Bath BA1 2BW

THE MOST COST EFFECTIVE SOLUTION

I can guarantee that my Spectrum is the only computer for under £100 now that has a working version of thin film design. And the competition? Other than the £400

Amiga everything else is serious cashflow.

Commercial programs (£2,000+) require a 386 or higher PC, or Macintosh, complete with co-

processor and minimum 1Mb RAM and 20Mb harddisk. (another £2,000) The Spectrum and the Amiga win hands down for both price and performance.



TECH TIPS

Want to put your CPC in the picture? Uncertain about the CDTV specs? Baffled by batch files? Planning to give your Amiga Tower-Power? Write to Keith Pomfret's Tech Tips

HELP

Do ROM ROM

The CD ROM that the school has bought and the Discman that I use to listen to CDs must be the same because I can take a CD out and play music on the school one. You should do a project to connect a Discman to an Amiga so we could all have cheap CDTVs. Another idea to go hand in hand with it would be an easy conversion to make a TV remote control work it. This should be done in your Circuit City.

Gino Lawson, Stoke Poges



• They may take the same silver digital disks but there's a world of difference between the way that they process the signal

I'M AFRAID that I'll have to pour cold water on both of your ideas. Most CD ROM players are able to play music CDs as it's a fairly simple job to take the digital signal from the disk and turn it into something to listen to.

Any basic CD ROM or CD player can do or can be adapted to do this. When you get into the realms of passing data to a computer you need a dedicated interface that both the TV and the CD ROM drive can recognise.

If you compare the price of a cheap CD player (£80) with the cheapest CD ROM (£300) you may notice a teeny difference in price. The CD ROM player has all the extra bits necessary to talk to the computer. In raising your question you do inadvertently raise another.

Are the extra parts in a CD ROM worth the price differential? In PC and some Macintosh installations an extra interface board is provided for the computer which can justify some of the extra expense but as the size of the CD and multimedia market increases I think we'll see that price differential narrow.

Your idea for an adapted TV remote control wouldn't work because in order to function, the CD or computer

would need to be set up to receive infra red signals and interpret them. Even if you could build the infra red interface to receive and interpret the signals, each different kind of ROM drive would need a different interface.

It would be possible to produce a dedicated infra-red controller for say the Amiga and we'll give some thought to a remote interface in Circuit City

HELP

MIDI interface

I am concerned that every article I've seen about MIDI says that the interfaces must be opto-isolated. Is this necessary? After reading up on MIDI, it looks like I could build an interface for my Amiga for less than a fiver without opto-isolators. Are they a way for the manufacturers to bump up the price?

Rick Kaye, Stevenage, Herts

THE PURPOSE of opto-isolating a MIDI interface is to protect both the computer and the MIDI network. Opto-isolators work by passing the electronic signal using a short light bridge and restoring the signal and level on the other side of the bridge. If anything goes horrendously wrong with anything on the MIDI network and large quantities of volts, amps, current or surges get loose, they stop in their tracks at the opto-isolator.

If you are planning to build some sort of MIDI interface don't risk blowing up hundreds of pounds worth of equipment for a £5 chip. Opto-isolators (or opto-couplers as they are also known) are easily available and necessary.

HELP

6128 BBS

Is it possible to run a bulletin board on an Amstrad 6128? I remember reading about one a long time ago but have lost the mag, read it wrongly or dreamt it.

My system is a 6128 (REAL GREY ONE) External 1 meg drive, CTM 644 monitor, which I have made switchable so the computer will run without it, 256k memory expansion/RAMdisk (switchable), Hayes compatible V21/22/23/22bis modem and often filled coffee cup. If you can help me find the magazine article I will be grateful. If you will show me how to set up the BBS, where to get the software and who to nag when it goes wrong, I will send you my wife (Photo enclosed. She can cook and earn a good living but she hates computers and if I had to make the choice...)

R. Beauchamp, Newcastle upon Tyne

IT IS POSSIBLE, it has been done, there have been several articles and we

can direct you to the experts. The easiest most efficient way to run a BBS on a 6128 is to use a program called ROS (remote operating system) which works under CP/M. There are versions of ROS specially configured for use with the 6128 and if your modem isn't already catered for, it should be possible to get a modem driver welded together by some helpful programmer.

ROS is written in Borland Turbo Pascal and the source code is available from Dave Gorski at Aspects BBS. The system that you've described should run ROS as it is without modification. If you contact Dave at Aspects by logging on and leaving a message, he should be able to provide you with the files and advice that you need. In order to configure the system for your own BBS, you'll need some sort of word processor.

This is because Turbo Pascal is a compiled high level language and the source code takes the form of a text file. If you understand programming in Pascal, you will be able to further tweak ROS to suit your own ideas and installation. If you're not a programmer, at least you'll be able to configure the screens and messages to your own specification.

The only problem that you may have is in compiling the program. The Turbo Pascal compiler that runs on the CPC is a shade rare nowadays. You'll probably need to find someone with a compiler to do the job for you.

HELP

CPC aka Arnold RIP?

After Amstrad cocked a snook at serious CPC owners with the games playing cartridge machine CPC pluses, I wonder whether the CPC, or Arnold to its friends, is being put out to grass. One never hears of exciting CPC developments any more

Enough of the musing, here's my problem. I have the excellent Stop Press DTP program, but the clip art available for it is dire. I understand it's possible to get digitised images into the program, but am not sure how. Can you help?

Dave Stewart, Staffordshire

AMSTRAD MAY very well have given up on the serious development of the CPC but, even as we write, a German firm has unveiled a CPC clone that looks set to breathe new life into Amstrad's first micro. To get digitised images into the program you first need a digitiser. This you can get from



• Getting digitised images into this CPC may not be as difficult as you think with a little help from WACCI.

ROMBO on 0506 414631 or direct from CPC aficionado Steve Williams at WACCI on 081 898 1090.

You can either digitise into the program that comes with the digitiser and import the file as clip art or you can digitise on the fly straight into your page in Stop Press

The image for digitising can come from a video camera, still video camera, video recorder or any composite video source.

Again, Dave Gorski should be able to provide a name. If you are a relative newcomer to programming and compiling, it's probably a good idea to have someone who understands Pascal compile the program for you.

Turbo Pascal is a powerful language but an unforgiving one. It's easy for a compilation to fall over due to a simple syntax error of punctuation. If you're used to de-bugging Pascal, these mistakes will seem to leap out of the screen or print out to be remedied in short order.

If programming isn't your forte, the colon masquerading as a semi-colon will remain cunningly hidden, refusing to reveal itself as the frustration quotient passes the red line. Good luck with your BBS project and don't forget to let *Express* know when you go on line so that you can be included in our BBS list.

HELP CDTV drive

Can a CDTV:

- 1 Run a hard drive
 - 2 Connect to the keyboard of a B2000
 - 3 Run CDI software
 - 4 Run a 3.5 inch floppy
 - 5 Load disk software
 - 7 Take a KCS power PC board
 - 8 Take an ATonce board
 - 9 Make me rich and famous
 - 10 Get me on the doctor's couch
- If it can, my machine is an Amiga B2000 (I have one in each of my houses. (My favourite software is MS Flight Sim (via the bridge board (and my desired machine is a couple of Neo-Geos.))) Do I get the award for nested parentheses?

Kelvin Hoyle, Wrexham

HERE ARE your answers:

- 1 No
- 2 No
- 3 No
- 4 Yes
- 5 Yes
- 6 There is no number 6
- 7 No
- 8 Perhaps
- 9 But you're already rich and famous. You've two B2000s and you're appearing in the only serious national computer magazine to hit the streets when people want it...Weekly
- 10 When we last checked, Andy editor was sharing the chaise-longue with the good Doctrix but I'm sure that if you're patient (groan) your time will come.

HELP Driven BATty

A PC that was bought at a computer auction had been stripped of software and the 20Mb hard drive only had the files off the provided DOS disk and some strange short text files with the

file extension .BAT. I understand that the AUTOEXEC.BAT file is the one that the machine polls in order to boot and run but what about the other files? They are ROUTE.BAT, WP.BAT, COMM.BAT, PIL.BAT and FU2.BAT. When I try to run them by typing the filename all fail except FU2.BAT which causes the machine to crash and lock up. The only way to reset the machine after the crash is to turn it off at the switch. What are these files that are sending me batty and are they any use? I've replicated two of them below:

```
CD\ARPV4
route
CD\WP
Protext
CD\
```

Martin Eaves, Wimbledon

THE BAT FILES are text files which give the machine a series of instructions to follow in much the same way as the Autoexec file does only instead of starting up the machine, a batch file might start an application like a word processor or spreadsheet. The two batch files that you've copied work in the same way. They change from the root directory to the dedicated directory of the application that you need to run and then start the program. The person that had the PC before you had *Autoroute Plus* route planning software and *Protext* word processor among their applications and although they've wiped the disk, they've left the batch files.

HELP PC Expansion

I have a PC that has no extra room for expansion on the motherboard but I need to add memory. It is a 286 AT clone and someone who knows about these things opened it up, poked around and told me the following. It is a 286 with 1 megabyte of memory. The video and hard drive controllers are part of the motherboard. There are two cards in the expansion slots. They are a multi i/o card with parallel, serial and games ports and a V21/23 modem. The remaining one eight bit and four sixteen bit slots are free. He further added that a simple way to add memory would be on an expansion card where he reckoned that I could add up to 32 megabytes on board.

Can you confirm that this is possible? It will be a bit odd if a machine with a 20Mb hard disk can have 12 Mb more memory than storage. I think that you did a PC build up recently and recommended a company that could supply expansion. Could you repeat the phone number for

HELP Sounding out

Can I connect my Amiga to my Philips stereo MIDI tower system. According to the Philips manual, the two phono plugs on the back are an auxiliary input. I've tried connecting a Discman to them and it works perfectly but I don't want to connect my Amiga without the benefit of your advice. If it is compatible, do I need special leads or will any pair of phono leads do?

Mark Hanson, Cromer

THE OUTPUT OF your Amiga is compatible with the aux input of a stereo system. A standard pair of phono leads are all that you need to connect them and if you haven't got these, any branch of Tandy can supply them.

One thing to remember though is that the nature of the sound produced by an Amiga is different from that produced by a stereo.

The same volume level of com-

those of us that aren't allowed to keep the back issues. (You know the story: "If I have to bin my *TV Times*, that weekly computer thing can go too.")

Gerrard D'Abo, Birmingham



• The PC is one of the few machines that you can open up without killing your warranty, offering an upgrade opportunity to DIY enthusiasts.

THE SIMPLEST WAY to do the upgrade is a slot in memory card as your friend suggests. It may sound a bit backwards way round but it is possible to have a machine with more memory than storage. With the correct software to take advantage of the extra memory a PC's productivity and efficiency can be increased by a large factor. One thing to consider if you're planning to upgrade your 286 is that perhaps a 386sx motherboard may be a useful option too.

The 386 chip has the ability to operate a multi-tasking environment and run as several 'virtual' 8086 processors. If you use your PC for jobs where you move data from application to application you may find that the 386 solution is best in the long term, allowing you to have several applications open at once and cut and paste between them. Check if your software's compatible if you take this route.

All the boards and peripherals that



• A hi-fi tower is the ideal peripheral to enhance the sound output of your Amiga.

puter sound can produce more 'nuisance factor' than say pop or classical music and can carry further much to the annoyance of those around who don't want to hear Blast the Aliens Greatest Hits.

The sound chip of the Amiga with its own internal source and the Amiga's ability to sample means that it can produce some pretty porky bass resonant sounds so you should keep the amplitude and tone controls on your stereo set in a way as to avoid overdriving and 'rattling' the speakers.

you need are available from DFI and are distributed by Silica Shop on 081-309 1111.

HELP File transfer

A friend and I are planning an ST Amiga fanzine for limited circulation at school and amongst friends. My friend is the arty one and I can write and that brings us to the first problem. If I produce text files in *Protext* on the Amiga, how can we get them into *Calamus* on the ST. We've both machines in the same room and I'm hoping that there's some way to get files from one to another without messy soldering

Malcolm Stott, Poole

There are two logical ways to do it. Firstly, you could get comms programs running on both machines and connect them together using a null modem cable. There are PD comms programs available for both machines for a few pence and Tandy will sell you a null modem connector and serial cable for a few pounds. Save your files in the ASCII format and use the comms software to send them down the wire.

Alternatively, there's a program called *Cross Dos* that enables an Amiga to read and write a PC disk. As the ST is also able to read and write a PC disk, it's a simple matter of saving an ASCII file on the Amiga and importing it into *Calamus* on the ST. ■

Write to Keith Pomfret, Tech Tips, New Computer Express, 30 Monmouth Street, Bath BA1 2BW.

KAO MF2DD
1Mb capacity

TDK

THE WORLD'S FINEST DISKS FROM T.D.K. & KAO SERIOUS QUALITY FOR SERIOUS USERS

Free delivery on orders over £50

BRANDED BOXED IN 10'S WITH LABELS	KAO	TDK
3.5" MF2DD 135 tpi DS/DD	£8.00	£9.00
3.5" MF2HD 135 tpi DS/HD	£15.00	£16.00
5.25" MD2DD 96 tpi DS/DD	£5.00	£6.00
5.25" MD2HD 96 tpi DS/HD	£8.00	£10.00

NEW LOW PRICES

KAO DISKAROO DISK WALLET CONTAINING 10 BRANDED MF2DD DISKS £10.00

	50	100
1 MEGABYTE 3.5" MF2DD BULK 50p each or	£24.00	£45.00
2 MEGABYTE 3.5" MF2HD BULK 75p each or	£35.00	£68.00

KAO MF2DD BULK DISCS 6 COLOUR: BLUE, GREY, RED, YELLOW, GREEN, BLACK, ORANGE, FOG WHITE

(PURCHASERS OF 100+ DISKS: WE WILL INCLUDE A FREE 3.5" DISK DRIVE CLEANING KIT)
All above disks are 100% error free & warranted free from defects & as such carry a 1 for 1 guarantee

POSSO BOX 3.5" +5.25" ONLY £14.00 EACH

DISK BOXES 3.5" 40 cap £4, 3.5" 80 Cap £5, 5.25" 50 cap £4, 5.25" 100 cap £5

STAR PRINTERS LC-10 Mono £145, LC-200 Colour £215, LC24-200 mono £255, LC24-200 col £300.

HP DESK JET 500 ONLY £428. - All include FREE IBM printer lead.

NB All prices inc. VAT with FREE postage & packing on orders over £50.00. Under £50 please add P&P at £3.00.

Overnight delivery £8.00 extra.

K.C. VIDEO, 6 & 8 DONCASTER ROAD, SOUTH ELMSALL,
NR. PONTEFRAC, WEST YORKS, WF9 2YZ
TEL: (0977) 649100 FAX: (0977) 643312

Access

VISA

◆ ST

ATARI megafile 30Mb hard disk with genuine DMA leads, utilities and diagnostic software £300. Why risk buying a non Atari drive that may not work! Tel 0529 304221.

ATARI 520 STFM with one meg drive, software mouse and joystick. One year old. £230 o.n.o. Please call 081 941 3040 and ask for George.

POWER Basic Compiler £25 ST organiser £15 Micro Prose Soccer, £10, all software as new, with documentation. Tel 0782 564256.

ATARI 520STFM one year old £150 Cumana 2nd drive £30 miracle modem WS4000 £25. Phone 0268 532082, after 5.30pm.

MIDI COURSES

at The School of Audio Engineering

- Basic/Intermediate/Advanced levels
- Commencing July/August
- 15 colleges worldwide

RING FOR FREE BROCHURE

071 609 2653

School of Audio Engineering, St. Marks Chillingworth Road, London N7

ATARI 520STFM discovery pack for sale. Games inc Gazza II, X-Out, Bubble Bobble magazines, plus cover disks, joystick, mouse, all for £275. Contact Steve, Harlow (0279) 434191, after 6pm weekdays.

HALF MEG internal ST drive. Offers. Craig, 56 Downland, Two Mile Ash, Milton Keynes, Bucks, MK8 8NH.

ATARI ST - music studio - paintworks - D K Minstrel, unregistered with documents exchange why or sell, wanted any serious programmes. Tel 0746 762283.

ATARI internal clock card including NI-CAD batteries, £10 o.n.o. 720K disk drive, suitable for Atari or PC upgrade £30. Fast Basic ROM based including manual £40. Phone Pete. 0322 662747, Swanley.

ATARI 52STFM 1 meg drive £150. 2nd drive £30. WS4000 modem £20. Phone 0268 532082, after 5.

ATARI 520STFM, 1 meg internal drive, loads of software, many ST Format magazines, with disks, 2 joysticks, v21 modem, boxed with manual, even a colour television! Only £200 o.n.o. Ring Michael on Doncaster (0302) 365641 anytime.

ATARI STE 1meg memory, microvitec colour monitor, power pack software, 2nd manual, PD software and magazines £400 o.n.o. Phone 0535 662637.

ST ADVENTURER'S P.D.L. games, maps, editors, solutions + full PD. Range (over 600 disks!) All disks £1.50 inc p.p. SAE or blank disk to: J.R. Barnsley, 32 Merrivale Road, Rising Brook, Stafford, Staffs, ST17 9EB.

TOTAL PD for the ST for your free catalogue, send a SAE to Chris Palmer, 27 Stanmer Villas, Brighton, East Sussex, BN1 7HQ. Don't delay, send today. Got it pal!

ATARI SF354 single sided drive. Not 100% working (new internal drive will cost £30) Excellent buy includes leads, PSU and super ST - colour science case, only £15. Kent area or + p.p. Call (evenings) 063 4723659.

1040 STF, 1 meg external drive, SM124 mono monitor, Atari megafile 30Mb hard drive. £600 o.n.o. ST software and books, Cyber 3D2, Cyber Paint etc. Offers. Phone Steve. 0273 557782. (will split).

ATARI 520STFM, boxed as new, disks, books, mouse, few games etc. £175. Tel Woking (0483) 764857.

STUCK on those tricky ST games. Help is here with over 150 cheats, tips etc on one disk for more free information. Send a SAE to Chris Palmer, 27 Stanmer Villas, Brighton, East Sussex, BN1 7HQ.

OF COURSE I shall not pretend to consider it any matter for wonder, that the extra ordinary bargain has excited discussion. It is ST Format 1-23 + cover disks, only £5 each. Phone Rich (0272) 843241.

ATARI STFM 520 with 1/2 meg upgrade, 3 games, 1 joystick, quick sale, £180. Ring George (0992) 461 663, after 6pm.

520STFM 1 meg disk drive DMP 3000 printer STOS, STAC, turbo digitiser, Devpac Cyber Studio, Cyber Paint, hundreds of magazines, games, PD, manuals, Abacus, books, very good condition. £650 o.v.n.o. Buyer collects. Phone 081 310 0640, after 6pm

EXTERNAL double sided drive for Atari ST/STE, with power supply. £30 or swap for mastersound 2, or STE Simm upgrade. Telephone (0795) 425653, after 4pm.

ANDREW Cummings. Lost your address. Please write or ring Martin Kirlow. 0924 891 632

COMPLETE Atari DTP/business system, mega 4 monitor, 30 meg Atari hard drive, Migraph scanner, plus vast amount of quality software, Protekt v5, FLT ST3 DTP, touch up, timeworks, spread sheet, neodesk, and lots more nearest. £1200 secures. Phone 031 334 8919.

1040STFM external 1Mb drive, £300 + of software inc games and Hi-soft C. Over 20Mb of PD software. All issues of ST User since July 1989 inc disks £375 o.n.o. Call Andy on (0245) 329297 eves.

JJ PD MUSIC SERVICES

Church Cottages,
Seafane, Kilve,
Somerset,
TA5 1EG
Tel: (0278) 74550

The best in music files & PD for Atari ST.

Send S.A.E. for copy of catalogued mini files.

See review on page 43 of NCE issue 137.

Ready to run with Roland MT-32
Sound Module.

Submit £3.00 for each file ordered.

Files not available in library
can be commissioned

ATARI ST software, all originals, boxed etc. Outrun, F16, Gauntlet II, Garfield, Operation Wolf, Ballistix, Chase HQ, Flight Simulator II, The Pawn, Tintin, Virus and more! Prices from £3. up. Tel 061 456 9587.

ST SOFTWARE, Harlequin, £25. Nordflair £35. TCB Tracker and Mastersound £30, supercharger with 1Mb internal RAM and TC power which uses ST's internal RAM £200 o.n.o. Worth over £300. Call Hakan on 081 533 2188.

ATARI 520 STFM excellent condition, boxed, double sided internal drive with some extras only £175. Phone Leeds 559499.

A ONE MEG 520ST, both Atari colour and mono monitors, both Atari disk drive units and Taxan Kaga KP-810 (Epson compatible) printer. All in mint condition. The lot £750. No offers. Call Matt. 071 485 2068.

ATARI 520STFM, includes games, including Golden Axe, Robocop 2, Pang and many more. Total price with every thing £894. Selling price £310, 4 months guarantee remaining, perfect condition, in original wrapping. Tel 0274 733386.

1040STFM external 1 meg drive, colour monitor, Star LC10 printer supercharger, PC Emulator, all manuals MSDOS, 20 games, 100 blank disks, £650 o.n.o. Tel 0209 713766.

ATARI 520STE, 1 meg memory, 1 meg external drive, SM124 monitor, clock card, joystick, lots of software inc games, DTP, word processor etc. Dust cover price £400 o.n.o. Tel Dunstable (0582) 660031.

SUPERCHARGER for Atari ST brilliant stand alone computer for true multi-tasking on ST. MSDOS 4.01 manual and TC Power software for massive extended memory potential/ All original software and in excellent condition. £200 secures. 031 334 8919.

SWAP my Power Computing 51/4" external drive for your Atari SM124 or SM125 mono monitor, after 6pm. Tel 0564 770132

ATARI ST computer games: Kick Off 2, £10, Lemmings, £8. Italy 1990, £5 Xenophobe £5. Many more. Sell or swap, all boxed as new. 081 570 3690.

ATARI STM1 mouse for Atari ST/STE or Atari PC boxed, unused, £10. 500 sheets A4 80GSM paper, ideal for printers, £3. Atari ST/STE PD for sale or swap. Tel 0795 425653, after 4pm.

ATARI STE power pack games, £1 each. ST Basic, boxed with manual £5. First Word, with manual £2. Telephone 0795 425653, after 4pm.

ATARI 1040 STFM with Hi-Res mono monitor, also software including FS II and 4 off scenery disks. Also STOSS games creator with PD disks and some books etc. Please phone 081 566 6052, after 6pm. Please ask for Roy. £290.

SONY 31/2 inch 1 meg disk drives suitable for Atari, Amiga, PC, third height. 5 volts new and boxed. Two available, £40 each. Will post free. Will swap for Amiga original games. Telephone (0495) 272358.

ATARI 520STFM discovery pack, 11 months old, few magazines and cover disks only £180 o.n.o. Also Philips 12" green screen monitor (composite video input) only £40 o.n.o. Ask for Wayne. (0753) 855023 (work) (0753) 842046 (home).

SCOTSOFT International is the new trading name of Gunning PD, quality PD for the ST from an established library. 3 x 1st class stamps for catalogue to: Scotsoft International (NCE), 41 Auchingane, The Tryst, Edinburgh, EH10 7HX.

STE 1 meg memory AT-speed fitted. Disks, joystick, magazines, £450. Will split, both 6 months old. Ring Martin 0924 891632, West York.

ATARI 520STFM, colour monitor, printer (24 Dot Matrix) 20 games. All in excellent condition and boxed £500. Phone 0532 741360 (Leeds).

WANTED: Neodesk v3 for Atari ST. Phone 09603 52103, after 6.30pm and ask for Paul.

TESTBOOM LTD Tel: 0695 571605
Fax: 0695 517606
286 from £600. 386 from £800
STE's POA Atari TT's POA Mega STE's POA

FOR SALE Atari 520STM, 1 meg drive, over 100 disks inc. All ST Format disks in mint condition, two joysticks, loads of games, worth over £800. Sell for £399. Phone Ben on 04616 (648) after 5pm.

ATARI ST, 1 Mb, mono monitor, PC-speed, harlequin, neodesk, timeworks, first word +, superbase, vip, Citizen 120D, fontkit, GFA Basic 2. £450 (Watford) 0923 36724.

ATARI 520STFM MSC cart, games, 1Mb disk, very good condition, all boxed. Only £200 if collected or £220 if posting required. Contact Saul on 0663 763398, after 6pm.

IMG clip art, GDOS fonts for sale or swap for catalogue, send blank disk plus SAE or £1 to: E. Renner, 62 Broxholme Lane, Doncaster, Yorks, DN1 2LW. All disks from £1 each.

AMIGA Midwinter and Dungeon Master to swap for F-19 Stealth Fighter. Also Amiga mouse, £10 or swap for Lemmings, Kickstart 1.2 chip, plus game £10. Tel Viper 0473 713715, between 6-9 pm only. Thank you.

B200 with two 31/2 and one 51/4 internal drives, 40 meg Quantum hard drive, 3 meg memory, 1080 monitor, Epson printer and more for sale £1200 o.n.o. Contact, Stu, 6 Mavo Drive, Bedworth, Warks, CV12 OHD. Phone (0202) 365820.

AMIGA software for sale: Rainbow Islands, S.C. Racer, Blood Money, Speedball 2, Super Cars 2, F29, Final, WH + Kick Off 2, Robot Monsters, Rick Dangerous, Blodwyd, all originals from £12-£5. Call for prices. Send money + jiffy bag + stamp. Call 0276 63830.

AMIGA bingo program. Full speech callout, number checker, includes board printer. Also free copy of Maniac Bingo. Ideal for those hot summer nights! £2.50. D. Brown, 2 Ashfield Grove, North Shields, Tyneside.

COLOUR or b/w digitising. Any photo's or pictures transferred to disk. Send SAE for details. "Sense", Brian Philcox, 20 Mather Avenue, Weston Point, Runcorn, Cheshire, WA7 4JJ. Phone 0928 567400. All Karate people welcome. Amiga.

AMIGA 500, 2months old, fully boxed, mint condition, includes joystick, games and other accessories, for only £300 o.n.o. Also Casio keyboard for quick sale. £90. Call Hitesh on 081 997 8269, after 5pm (London).

AMIGA A500 with software etc £320. Excellent condition. Atari 1040STFM with mouse, manuals etc £320. Also excellent condition. New car forces regrettable sale. Telephone (0495) 272358. No timewasters please. Also Amiga software, £10 a title.

AMIGA A500 1 meg expansion, 2nd disk drive, action replay, cartridge, 2 joysticks + mouse, workstation monitor stand 250 + disks (games, utilities, demos, etc) Disk boxes, very good condition, £450. Phone 061 973 8957, after 7pm.

AMIGA PD software, demos, music, horror, sound samples, utilities etc. 80p per disk. Catalogue disk 80p with free PD. Original software from 50p! (Many formats). Chris Jackman, 3 Albion Terrace, Lexham Road, Litcham, King Lynn, Norfolk, PE32 2QQ.

Let this advertising space work for YOU!!

For Only £61

Contact Tim Partridge
on
0225 442244

ATARI 520STE, SM124 mono monitor, 2nd drive external disk drive, programming books, C compiler, software including games, all boxed and in mint condition. £400 o.n.o. Secures the lot. Phone Benji on 081 520 6568, after 6.30pm.

ATARI 520STFM, discovery pack for sale, excellent condition, 8 months old, complete with box, all manuals, magazines + joystick and mouse. Also games like R-Type, Red-Heat, Atomic Robo Kid + PD Stuff + blank disks. All worth over £400. Sell for £280. Contact Bally (0274) 543809.

◆ AMIGA

A-MAX II Macintosh Emulator and Mac drive (800K) for any Amiga with all Mac software. £250 o.n.o. Tel 071 4031061.

AMIGA syncro Express MK1 wanted will pay £10. Write to David Anderson, 20 Gill Park, Denny, Stirlingshire, Scotland, FK6 6HJ.

AMIGA PD software, demos, music, horror, sound samples, utilities, etc. 80p per disk, catalogue disk 80p with free PD and original software from 50p (many formats). Chris Jackman, 3 Albion Terrace, Lexham Road, Litcham, King Lynn, Norfolk, PE32 2QQ.

AMIGA A500 excellent condition with modulator, original games, demos, and two joysticks. Call (0562) 754297, after 6pm and ask for Jason. £280 o.n.o.

AMIGA A500 18 months old, A501 expansion, extra 3.5" drive, console, games, master sound sampler, £360 o.n.o. (Surrey). Tel 0883 622626.

EdLib The new concept in Amiga PD/Shareware

The **EdLib** collection - a carefully chosen selection of PD, compiled by subject to save you time, trouble and money. All disks regularly updated with the latest and best programs. Full of hints, tips and tutorials. **Membership available. Unbeatable value: only £1.50 per disk!** Flying Start (for the new owner), Graphics Master (every graphics manipulation you can think of - 2 disks), Animator's Delight (great animation programs - 2 disks), Best Utilities (for the new user), C Disks (learn C easily - 2 disks), All Systems Go! (unique guide to Amiga Systems), Fractal Lab1 (explore every aspect of fractals), Scientific Collection 1 (the best PD astronomy), HobbyHorse (Family entertainment), Best Mandelbrot, Basic Compiler, PC-HAM Conversions + lots more.

Large stock of other disks: all the Fish disks and more; Demos, Games, Music.

Unbeatable price - only **89p** per disk! Our choice this week:

Lemmings Demo * Text Plus Word Pro * Nethack Adventure Game * China Challenge

Full details in our catalogue disk - only £1.00 incl p&p, or 50p with order.

High quality disks, virus-free, copied with verify flag. P&P: 60p (UK), £1.00 (Europe).

Cheques/POs/IMOs to: **EdLib**
(Dept E2), Scotland Farm, Stockwood Road,
Brislington, Bristol BS4 5LU. Tel: 0272 723489

AMIGA 500 1Mb, £275. Okimate 20 24-pincolor Dot-Matrix £125. Brand new, unopened software: Deluxe Paint 3, also £50. Platinum Works! £50. Their Finest Hour, £10. Sim City/Populous £15. All prices negotiable. Phone Howard: 092 461757.

AMIGA software, 13 games and Devpac 1 assembler, all boxed, cash, part exchange or swap for anything Amiga related. Phone Reading 0734 591407, after 5pm.

WANTED Amiga viruses (especially file viruses) for a PD documentation programme. Send to William Smith, Loretto House, Candle Road, St Peter Port, Guernsey, C.I.

AMIGA A400 1 meg, Canon Bubble Jet printer, Hitachi tuner monitor, Naksha mouse, over £1000 worth of games, 3 joysticks, books, magazines, cost £2400. Sell for £700. Phone 0372 40312 (evenings).

AMIGA programmers urgently wanted, to teach artistic beginner how to program in 68000 assembly language. Has two years experience in graphic design. Please write to Mike. 24 Barrett Road, Walthamstow.

AMIGA original Captive swap for Chaos Strikes Back. Ring 0603 666524.

GRAPHIC artist needed on the Amiga to collaborate with me on some game ideas. Preferably in the Birmingham area. If your interested, send me some of your stuff to: Mark Nixon, 420 Hobmoor Road, Yardley, Birmingham, B25 8HE.

FOR SALE Amiga PD software disks only £1.50 each. Send £1 now for a disk catalogue to John Davis, 21 Lower Careys Road, Limerick City, Ireland. Refundable on first order. Amiga PD contacts also wanted.

SUPERCARD AMI - II. Copies all Amiga software made to date! Includes software and hardware. All instructions supplied on the program disk. £45. Telephone Daniel on 0795 875698, after 4pm.

AMIGA A500 1 meg, Cumana drive, 1084S stereo colour monitor, joystick, mouse, dust cover and plenty of utilities and games. £550. What are you waiting for. Tel (041) 339 2200. Will split.

B2000 two 31/2 and one 51/4 internal drives, 40 meg Quantum hard drive, 3 meg memory, 1080 monitor, Epson printer and loads of extras for sale £1200 o.n.o. Contact Stu, 6 Mavor Drive, Bedworth, Warks, CV12 OHD. (0203) 365820.

..... COMPUTERS

For probably the best prices and deals on Home and Business Computers, Acorn, Archimedes, Atari ST's, Lynx, Commodore 64's, Amiga's, Amstrad, Star, Citizen, Canon, Panasonic, Sega, Nintendo Consoles. Plus printers, disk drives, monitors, memory upgrades and accessories etc. Great deals on PC's.

* FAX M/C's * ANSWER M/C's * PHONES *
Joysticks from £4.99 Blank disks 5.25", 3.5" 3"

SGM ELECTRONICS

19 Charles Street, Wigan, Lancs, WN1 2BP
Tel: (0942) 321435 Fax: (0942) 821273
Mon-Thurs 11.00am - 9.00pm
Fri - Sat 11.00am - 7.00pm or later
Repairs to most makes of computers



TOPAZ SOFTWARE

Send a cheque or P/O for £1 for a detailed catalogue disk, complete with games, utilities, demos, special offers and reviews of hundreds of Amiga PD. You will also receive a free disk of your choice with your first order of five disks or more.



Topaz Software
Wheelwright's Yard, Nuthall Road, Cinderhill,
Nottingham NG8 6AD
Make cheques payable to Topaz Software



ICD ADAM 540 4 meg expansion card, clock, ok, £40. Fits in trapdoor Z.V.P. video studio, £25. Zuma T.V. text £25. Amos £20. Ring 0722 790776, after 6pm. Salisbury, Wilts.

AT-ONCE PC Emulator for Amiga and 51/4 inch drive. 6 months old, in perfect condition. £210. Phone Eddie on (051) 727 1426 every evening between 7-8.30pm. Buyer collects.

AMIGA A500, one meg 10845 colour monitor, three joysticks, Amos, 50 games, 80 disks of utilities and demos. £850 wanted, open to offers. Call Carlos on 081 659 1426.

AMIGA 500, stereo colour monitor, extra disk drive, loads of PD software and games, joystick, mouse, all leads etc. Boxed as new, £500 o.n.o. Phone Andrew, Southend, 0702 467825 after 5.30pm.

AMIGA 500 with 1 meg chip RAM, 20Mb A590 hard drive, Cumana external floppy drive, action replay cartridge, Photon Paint v2.0 and around £150 worth of games. £600 o.n.o. Tel 0622 720142.



286-12 1.2MBFO 1Mb memory VGA P.C.B. AT keyboard monitor, baby desk case £540. Tel 081 365 0326.

PORTFOLIO 64K memory card. Still under guarantee £40. Call (021) 4780826.

PC 286 20Mb hard drive 31/2 51/4 floppy colour monitor Arc Proturbo excellent condition, £600 o.n.o. hard cars £85. Contriver hand scanner £60. Telephone 0527541526, after six.

SOUND blaster card, including software (Voxkit, Talking Parrot, sampler etc). Boxed and complete £100. Call Richard (0924) 252199, after 6pm.

APRICOT network. Apricot DOS, main server: 20Mb hard disk, 896K double sided 31/2" drive. 3 terminals, needs to be set up. £400 o.n.o. Tel (0983) 299646, after 6pm MS Word inc + manuals and disks.

PC SOFTWARE sale, File Rescue plus. Mirrorsoft, 315. Ability plus £70. Sidekick plus £45. PC file 5.0. £40. 1st word pus Amstrad, £25. Volks Writer 3, £75, few others and games available. Tel 0928 581429.

IBM AT Clone, 12MHz 286 640K RAM, 20Mb hard disk, 5.25 inch and 3.5 inch disk drives, Hercules graphics card, mono monitor, serial mouse, MSDOS 4.01, Wordperfect v4.2, Lotus 123 v2.2, plus lots of other software. £500. 0689 843561. Croydon.

FREE for all BBS PD + shareware for PC's and artists, no fees PC and St Clinics. Eazihost in East Anglia 1200, 2400, 8-N-1, 24 hours. 0763 261624.

AMSTRAD 1640 DD ECD. 32Mb hard disk, 3.5 external drive. Microsoft word, IBM storyboard plus £650. Phone 0962 866840.

COMMODORE 128, datacassette, leads, manuals, good condition. Joystick, magazines, about £300 worth of games inc Kick Off 2. Turrican 2, Super Monaco G.P. etc. £275 o.n.o. Tel Rainham. 04027 20549.

TOSHIBA 3.5" 100Mb IDE hard disk, 99% brand new, £240 o.n.o. Contact Gary 071 700 6342.

AMSTRAD CPC6128, two drives, tape deck, mouse, multiface, Maxami, GAC, Hitch Hiker, Advance Art Studio and over 200 games, worth £2200. Quick sale needed, therefore all offers considered. Best offer around £575 wanted. Phone Bath 313885.

C64 original software auction for catalogue. Send SAE to Computer Kid, 5 Woodside Cottages, Highwood, Chelmsford, Essex, CM1 3RD. Also wanted C16 + 4 software and hardware. Send your lists to above adress for my best offer

GEOS fonts, 20 new fonts for geos 64/128. Most with multi point sizes. Designed in England with pound signs. 51/4" disk. Only £3.99 incl p+p. Michael Pearson, 31 Saxon Close, Stratford Upon Avon, Warks, CV37 7DX.

AMSTARD 464, light pen, £200 plus of games. No monitor or modulator, hence bargain £100. Will split. Call John on (0232) 658939 (Belfast). Boxed in excellent condition with manuals.

SPECTRUM 128K+2, joystick, mouse, £200's worth of games, art package, mouse mat, various magazines, about 50. Tel Daniel on (0245) 381288. The lot for £200.

BBC books, machine code disks, ROMs some spares. Official BBC service manual £5. Send SAE for list. John 0522 750846.

CBM64 with disk drive, data cassette, cartridge, joystick, books, loads of software, 2 PSU's £235 o.n.o. All in good condition, consider split. Details tel 0532 771107.

BINARY ZONE PD

The Very Best of The Rest

We stock only the best of PD for the CBM 64 including the very latest Demos and all the classic titles as well as PD games, utilities, music demos etc.

CBM 64 demo disks are only £1.50.

Now you can find out what your computer can really do by writing now for our catalogue. (FREE disk with first order).

BINARY ZONE PD

153 Farriers Corner, Westlands, Droitwich, Worcs. WR9 9EX.
"Please state tape or disk"

COMPUTER CABBIES REQUIRED

A1 DATA is a taxi firm for computer users. We recruit people who know their way around computers. A1 Data sells to people and companies who need to find their way around computer operating systems and computer programs. Our members sell this knowledge on the world-wide information market.

Does your knowledge qualify you to join us?

Do you use popular, big-selling, well-known programs? Are you a POWER USER?

MONEY

10% Royalties and rising mean that for one - time work you get paid every three months for the rest of your life

REPUTATION

Your name by-lined on your work in internationally published material means you become an internationally published software author. Add sparkle to your CV.

LEADING EDGE

Leading Edge Programs and Leading Edge Systems become more affordable when they can be used to generate income.

NETWORKING

Join a network of dozens of like-minded people - well informed, well motivated, self-starting computer users.

INTERNATIONAL

As the Micro Revolution spreads across the world's trading networks more and more people will need program support in other languages than English. We can internationalize your marketing with multi-lingual translation

SORRY

ST & AMIGA ONLY required at this time.

For more information and a membership form send an S.A.E. to:

A1 DATA ASSOCIATION PO BOX 226 LIVERPOOL L69 7JF

OLIVETTI M21 luggable 128K RAM 2 x 360K disks, manuals, £120. ATI VGA card plus drivers £50. Sysgen Bridge card, £40. 1Mb PS2 memory part no 6450603, £20. Inforem XT multi function card £25. Phone 081 313 9445.

COMMODORE PC10 computer, twin disk drive, 640KB RAM, video tutor, serious software, hardly used, boxed, 8 months guarantee, £300 or exchange for midi guitar. 0484 541357.

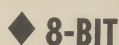
EMPIRE BBS. 0473 683215, no fees. Loads of software for PC's and a BBS support signature, 24 hours and immediate registration for all new users.

ADVANCE PC, colour monitor, printer, 20Mb hard disk, 51/4 and 31/2 floppy. 640K, £595. Tel Nigel. 0494 482065.

PC 286 20Mb hard drive 31/2 51/4 floppy colour monitor Arc Proturbo excellent condition, £600 o.n.o. hard cars £85. Contriver hand scanner £60. Telephone 0527541526, after six.

CHEAP XT! Olivetti PC-1 mono CGA, 640KB RAM, twin 720KB floppies, clock, 2-slot expansion box, very good condition, only £299 o.n.o. Ring 0604 406504 anytime (Northampton). Wanted: cheap or P/D Cobol compiler.

OLIVETTI PC1 twin 3.5" disk drives, mono CGA monitor, very good condition, £150 o.n.o. Phone Jim on Chippenham 660876 after 6pm.



SPECTRUM +2 with 3.5" disk drive and interface, many games. £220 o.n.o. (Surrey) 0883 622626.

COMMODORE 64/1280 tape, modem, joystick, plus lots of games on disk and tape + PD disk drive is built in cheap at £170 o.n.o. Also 1 meg A500, 2nd drive, 400 disks + boxes £480. 061 740 8188.

AMSTRAD tape games. Two large boxes full, about 200+ inc compilations. Offers under £150 almost takes. Also CPC6128 tape deck with leads, £15 or £150 o.n.o. the lot. Phone Swindon (0793) 693068, + leave message for Mirek.

BBC MASTER 40/80 disk drive inter word, spell phone or write with best offer. Andy, 48 Monckton Road, Alverstoke, Gosport, PO12 2BQ. No time waster offers over £200 please. Tel 0705 522924.

AMSTARD CPC464 with disk drive, mono monitor, TV modulator, multiface, 100+ games on tape and disk, eg Rainbow Islands, Mini Office, many magazines, books, joystick, excellent condition. Bargain only £175. Phone after 6pm (0480) 61253. No split.

COMMODORE 64 keyboard, datacassette power supply disk drive, 1701 colour monitor £230. Will split 081 391 0514 Chric 0784 259149 Andy.

SPECTRUM +3 for sale, loads of games, tape and disk, tape recorder + lead, joystick worth + cover tapes for £80. Quickjoy II Turbo. £8. Phone Simon on (0242) 571366.

DRAGON 32 for sale. Working, with power supply, but no cassette lead. Sell dirt cheap, or swap for 31/2 inch disks or sam programs. Anyone interested? Call Mark on 0737 778421. (answer phone, so leave message).

AMSTRAD CPC6128 green screen, games, books, utilities, magazines, cassette leads and 10 3" disks including CP/M master disks. Phone with offers around £250. Tel 0253 713319.

AMSTRAD CPC464, disk drives, mono monitor, over 100 games, many extras, excellent condition. Bargain worth £1000+ only £175, or swap for Sega megadrive or Amiga 500 hard disk drive. (Cambridge). Phone 0480 61253

FAULTY Einstein 64K for spares/repair built in 3" disk drive, 1 blank disk, basic manual, £12. Call (03985) 438 or write: 2 Town Mead, Oakford, Devon, EX16 9EW.

ATARI 800 £40. 400 £25. Printers (Iola) £70. 1027 £40. 822 £40. ROMS from £4. Disks from £4. Touch Tablet £10. Data recorder £10. Many others. Tel 051 632 3515.

AMSTRAD CPC464, joystick, modulator, DK Tronics, light pen, green screen monitor, £275 worth of software, only £150 or nearest offer. Contact Ian on 0782 283858, after 5pm. (manual and many magazines included).

AMSTRAD 464 with colour monitor, printer, manuals, books, magazines + over £450. Software cost altogether over £800. But two keys which are never used are damaged, hence £220 o.v.n.o. Tel (0225) 766205.

VTX 5000 modem suitable for any Spectrum computer. Brand new, still in box, comes with all the leads, software, and manual. Great fun. Only £20. Mint condition. Please contact: Steven Howlett, 1 Solva Road, Clase, Swansea, SA6 7NX.

COMPUTER BARGAINS

Hercules 12" amber monitor (12v).....£29
Hercules 12" amber monitor (240v).....£49
Amstrad PPC1512 SD (no manuals)£149
Amstrad PPC1640 SD (no manuals)£179
Amstrad VGA 12" paper white monitor£69
Spectrum +2 with manual and psu£89
Spectrum +3 with manual and psu£109
Spectrum +2 power supply£18
Spectrum +3 power supply£18
Amstrad DMP3000 9pin printer.....£69
PC modems (no data, no software).....£18
CCTV systems (inc camera and monitor).....£99

5 1/4" 720K drives£35
5 1/4" 1.2M drives£45
5 1/4" 360K drives£30
PC power supply with fan, on-off switch£25
3" drives (6128, PCW etc)£30
Amstrad CPC464 (no manual)£80
Amstrad CPC6128 (no manual)£140
Amstrad GT65 monitor£49
Amstrad SM2400 modem£99
3 1/2" 180K drives (BBC etc)£22
3 1/2" 1.44M drives£39
PC1512DD inc colour monitor£245

SCS COMPONENTS

218 Portland Road Hove Sussex BN3 5QT

All prices are subject to VAT plus £2.50 P&P

Telephone orders: 0273 770191 Fax: 0273 23077

Visa/Access (Trade enquiries welcome)

BARGAIN! CPC 464 green screen with TV modulator, loads of games, including Bloodwych, Robocop, Liscence To Kill, all worth £500. Sell for £80. Phone 081 776 0538 at weekends, or evenings.

BBC - B COMPUTER for sale. Very good condition. Two joysticks, with double connector. £240 o.n.o. Games and cassette player. Telephone Anthony on (0602) 235474.

AMSTRAD 3" disks (Maxell CF2), brand new, 13 disks for £20 inc postage. Ring Andy on (0922) 724005.

FOR SALE very cheap Spectrum tape software, Write to Alan Roberts, 16 Livesey Avenue, Ludlow, Shropshire, SY8 1HN

AMSTRAD GX4000 with Pang Switch Blade and Burning Rubber, excellent condition. Still boxed, a bargain only £90 o.n.o. Contact Stephen Wilson, 470 Holden Road, Leigh Lancs, WN7 2HU or on 0942 678284.

MEGADRIVE Jap 54 games pro! Joystick, games, inc Revenge Of Shinobi, Ghouls N' Ghosts, Golden Axe, Tatsujin, Alex Kid Eswat, 3220 o.n.o. Ring Halifax. 0422 346350, after 6pm.

SCART megadrive, boxed, complete with joypad and all leads, and Strider, Super Monaco, Inspector x and Last Battle, £160. Write to Mr. B. Hiltton, 6 Walnut Walk, Polegate, East Sussex, BN26 5AD.

Sharow Electronic Supplies

COMPUTER SALES - REPAIRS

Access/Visa most welcome

Phone us on 0765 607887 anytime

CONSOLES

SUPER FAMICOM (Scart) with populous and F-Zero, £210. Other Famicom games available. Also Neo Geo with Nam 1975 and Baseball and extra controller £450. All boxed and in perfect condition. Phone 0322 863656, ask for Darren.

ATARI Lynx inc Gauntlet II, plus two sets rechargeable batteries and charger. £120 or reasonable offer. Tel (0533) 720663, after 6pm. (But, please not after midnight eh?). Ask for Mark.

PC-ENGINE titles, wanted second hand, Final Match Tennis, Motorader Two, reasonable price paid. Also games for sale from £10 - £16. Tel 0602 612713, after 8pm.

GX4000 and all leads, Burning Rubber, Robocop 2, Switch Blade, all boxed for only £90. Also Atari Lynx, all leads and 2 games for £90 cash only. Buyer must collect. Phone 061 308 2102, after 7pm.

FOR SALE: Nintendo Super Famicom, two joypads, Final Flight, Mario World, Gradius 3, boxed, guarantee, Scart version, month old. Only £290 o.n.o. Phone Mete 081 363 2931.

MEGADRIVE, new, boxed, including Eswat, Super Monaco, Michael Jackson, Inspector, Cyberball, J.M. American Football, Hellfire III. Total cost £600. Will take £295. Call Gary on answer phone. 061 796 6222 or 061 766 4342.

ATARI 800XL, 1050, 1010, tapes + 30 disks, very good condition and packaged 130XE, all for £225 o.n.o. Zenophone, AC Adaptor, all boxed. £110 o.n.o. No splits. Call Richard on (0573) 26032.

MEGADRIVE PAL/Scart, two controller pads, two games £105. Runs all game types, Jap, English, American. Tel (0252) 315634, after 6pm ask for Tony.

CONSOLE Crazy. New console Fanzine only 79 pence (inc p+p). Full of reviews and news. Send cheques and postal orders payable to "CC" to: 28 Watergate Lane, Woolton, Liverpool, L25 8QU.

NINTENDO game boy, with game light and four games, Tetris, Teenage Mutant Hero Turtles, Tennis and Fortress of Fear, total value, £165. Will accept £115 o.n.o. Tel 061 620 7369.

ATARI Lynx, 3 games, Klax, Blue Lightning, Electro Cop. Worth £200. sell for £120 o.n.o. Ring Gary 0625 876649. Must be in Manchester area.

FOR SALE: Super Famicom with 5 games, Gradius, Act Raiser, Mario 4, Final Flight, and F-Zone, the lot only £320 inc p+p. Tel David (0924) 494690. PS it's a Scart version: Also Jean Michele Jarre contacts wanted. Please telephone.

FOR SALE magnum Light Gun for Spectrum +3 comes with 6 Light Gun games including Operation Wolf £12. Write to Alan Roberts, 16 Livesey Avenue, Ludlow, Shropshire, SY8 1HN.

PRINTERS

EPSON FX-100 DOT Matrix printer, up to 136 chars column width, currently attached to Atari STE, fully working, can be seen working. Phone (0268) 752825 evenings or weekends. Price £150.

WANTED. cheap, working printer for my ST. Must be able to print single sheets. Will pay cash or swap original software (Dungeon Master, Pipemania, Rocket Ranger, Operation Wolf etc). Can collect in Manchester area. Iain Maule, 14 Cambridge Road, Gatley, Cheshire, SK8 4A3.

KODAK Diconix 150 plus portable ink-jet printer. Fast silent operation mains or battery. Built in charger. Nicads supplied. Four type faces, single sheet or tractor feed. 11" x 6" x2". Weighs 31bs. Hardly used. Six months guarantee. £245. 0602 473415.

PRINTER NEC P2200 24PIN printer. Can go upto 300DPI has spare ribbons. Quick sale £90, plus loads of PC games for sale. Please call Rob, after 7pm on 081 909 3025.

STAR LC-10 printer for sale. £100 including postage. £95 if you collect. Perfect condition, lead to Amiga, boxed, plus manual. Write to David, 37 Muirfield Avenue, Swinton, Mexborough, S. Yorks, SG4 8TF.

WANTED circuit diagram for an Epson RX 80 printer any reasonable costs paid, please write. Nick Tapster Pen. Y. Bryn, Greystones Lane, Freshwater Bay, Isle Of Wight, PO40 9TX.

KAGA Taxan 810 printer, Epson 9PIN printer compatible NLQ printer £80. Tel 071 586 6155 eves.

CITIZEN Swift 24PIN, 7 colour printer, excellent condition, £250 o.n.o. Call Richards, after 6pm. (021) 5265476.

BROTHER HR-5 thermal printer and Spectrum +2A with all leads, ribbons and paper. £200. Tel 604654. Alnwick.

MONITORS

ST MONITOR - Sinclair vision 12" vision colour monitor adapted for use with Atari ST, slight flicker when first turned on, otherwise very good condition, with monitor splitter box. £80. Tel 071 586 6155 eves.

XEROX 19" with display card and s/ware. Mono, CAD, DTP, Windows 3.0 retails £1,000 + currently computerless, hence £330. How many printers print good colour anyway? Enough said. 0236 32922.

MODEMS

NEW Olitec 1200 internal modem IBM compatible software instructions in French, sensible offers please. Phone 0489 578634.

DACOM system 'DTI' Schools Prospect' modem v21/v23, auto dialling, no PSU, lead, not sure if it works, but full of spares ideal for keen electronic enthusiast. Cost £170 new. Yours for £8 in p+p (0634) 723659.

MODEM Pace Nightingale v21, v23, £50 as new, boxed. Tel 0388 720442.

TANDATA TD1616 viewdata terminal, with manual, 16K memory, printer interface, sockets for TV composite, RGB. In good order £30. Call (039 85) 438 or write 2 Town Mead, Oakford, Devon, EX16 9EW.

MODEM mirical technology WS4000 modem with software for ST fastcom and datacom. All leads and power supply. £90 the lot. Tel 0451 31782.

SOFTWARE

CONNECT the ultimate pools system, IBM compatible, stakes ranging from £1.09 to £50.68 yearly registration £11.50. Free copy, send large SAE. How can you do it, without it. Write to: B. F. Hallmann, 306 Dallow Road, Luton, Beds, LU1 1TD.

AMIGA, boxed originals for sale and/or exchange: send SAE for big list to 13 Bournville Lane, Stirchley, Birmingham, for a prompt reply. Over 200 games and other bits and pieces.

PBT ELECTRONICS LIMITED

PORT TALBOT WORKSHOPS, Unit 17, Addison Road, Port Talbot SA12 6HZ
TEL: 0639 885008 FAX: 0639 887170

SAM COUPE computer no drive.....	139.99	Colour multi dump utility on disk.....	8.99
SAM COUPE computer + 1 drive.....	199.99	Parallel printer cable SAM/+D.....	7.99
SAM 1Mb memory pack.....	79.99	Parallel printer cable +2A/+3.....	7.99
SAM disk drive.....	79.99	SAM scart cables.....	9.99
SAM 256K expansion.....	39.99	SAM midi cables.....	7.99
SAM comms interface.....	29.99	SAM dual joystick adaptor.....	8.50
SAMbus includes real time clock.....	49.99	Plus D/BBC dual drive adaptor.....	14.99
Printer switch A+B.....	23.95	3.5" DS/DD disks box of 10.....	6.49
SPI printer interface for SAM.....	19.99	3.5" disks loose in 10's.....	3.90
Voice Box allows SAM to speak.....	39.99	3.5" lockable boxes 40 cap.....	4.99
SAM sound sampler + microphone.....	49.99	3.5" lockable boxes 80 cap.....	6.99
Citizen 120D + parallel printer.....	140.99	Tractor feed paper 2000 sheets.....	21.99
Citizen 124D + parallel printer.....	195.50	SAM tech manual.....	16.99
Citizen Swift 9 colour printer.....	195.50	Master DOS.....	15.99
Citizen Swift 24 colour printer.....	295.50	SAM midi sequencer.....	32.50
Mannesman MT81 parallel printer.....	135.99	120D ribbons.....	4.69
Star LC10 ribbons black.....	6.19	Star LC10 colour ribbons colour.....	8.29
Mannesman MT81 ribbons.....	4.99	Citizen Swift colour ribbons.....	14.99

ALL SAM SOFTWARE AVAILABLE. PLEASE RING FOR PRICES

All prices include VAT - Postage Printers/Computers £5.00. Postage all other products £1.00

DISK DRIVES PLUS D AND DISCIPLE INTERFACES REPAIRED, PLEASE RING.

ST S/WARE TSOS, Operation Wolf, Dungeon Master, Chaos Strikes Back, Shadow Warriors, Bloodwych, Flying Shark, Power Struggle, Falcon, Borrowed Time. £39 +p+p the lot, bargain. Contact Darryl on 0989 65818, evenings.

MULTIMATE advantage II version 1/0 revision D complete set 51/4 disks sealed and unused, no book. Offers phone 0489 578634.

SIERRA games for PC, Space Quest IV and Kings Quest V, VGA versions on 51/4" disks. Also Trial By Fire. £25 each o.n.o. Atari ST Sierra games. Call for list and prices. Phone 0322 863656, Darren.

WANTED for C64 disk version of Defender Of The Crown. Will pay a good price for a clean tidy original. Tel STD (0935) 72694.

ARCHIMEDES games for sale, many all in very good condition. Masterbreak £10, Talesman £10, Hostages £10. For full list write to: Mark Richardson, 30 Dereham Road, Barking, Essex, 1G11 9HA.

ARCHIMEDES game interdictor 2 for sale, unwanted competition prize. Brand new unused £25. Phone 081 594 6453, after 5pm. Ask for Mark.

C64 GAMES for sale on cassette, over 60 titles, including Robocop, Ghst Busters, plus free computer magazines and write your own games book. £75 the lot. Write to Stephen Aldred, 6 Eastville Road, Tyllwyn, Ebbw Vale, Gwent, NP3 6AH.

AMSTRAD CPC software, all top titles. All for just £3 each for full list. Write to Wayne at 52 Cross Lane, Radcliffe, Manchester, M2B 9GY.

On-line

642a Lea Bridge Rd, London E10 6AP
A breakthrough in MULTI-PLAYER entertainment
Got a modem - Join Instantly!

Playing NOW, the award-winning adult space fantasy **FEDERATION II**. COMING SOON... The original, the legendary, the classic, **MUD** From the States, the mind blowing 3D combat flight simulator **AIR WARRIOR**.

Membership **FREE** as a special introductory offer. Log on and find out more! CALL on 081 539 6763

AMSOFT CF-2 double sided 3" disk box of ten 315. Phone 0489 578634.

WANTED, cash paid for Amiga and Atari ST originals, must be complete and cheap. Tel 0752 672768 or send list. Paul Potter, 4 Beechwood Terrace, Mutley, Plymouth, Devon, PL4 6FP.

ST GAMES (all originals, Lemmings, Sim City, Hard Drivin II, Populous, Xenon 2, Stunt Car Racer, Falcon, 3D Pool. £7 - £12 each. Phone (0932) 283130.

INFORMIX wingz (windows spreadsheet) worth £395. Unopened, will sell for £225 o.n.o. Phone Liverpool, (051) 228 2236. Ask for Carl.

CALAMUS fonts two £5 each not PD clipart, 1Mg Format £3.50, disk large SAE for details. 136 Oakdene Crescent, Nuneaton, CV10 ODT.

AMIGA originals £7 each. R-Type, Flood, Chase HQ 2, Police Quest 2, Super Wonderboy, Menace, Xenon 2, Blood Money, Lotus Esprit, Lost Patrol, Battle Command, Wings etc. Amos £18. Phone 0525 373696. Steve.

BORED with current software, exciting software swapping, contacts club. All machines catered for, Amiga, ST, Sega etc. Hints N' Tips, quarterly newsletter, interested. SAE R. Smith, 164 Crown Street, Aberdeen, AB1 2JB.

PC SOFTWARE, all originals on 51/4 disks. Migent Ability £45. Mini Office £15, name that disk, £10. 15 shareware disks on 31/2 £17. May swap with other software. 0543 372341, office hours. Ask for Mr Timbrell.

AMIGA software (all boxed originals) Super Cars £6. Future Wars £9. Rick Dangerous £6. Switchblade £6. Stormlord £5. Zynaps £5. Robocop 2 £10. Nightbreed £10 or £50 the lot. Wanted: Captive Cadaver. Ring Ian 0874 624297.

DESIGN CAD 3D for PC requires HD 386 + processor recommended, boxed with manuals, very good condition. £130. Tel 040377 545. W. Sussex.

IBM/PC shareware disks 50p each: Send SAE and blank disk for details. 63 Springboig Road, Glasgow, G32 0DB or phone 041 774 2009. (before 9pm).

AMIGA software, 13 games and Devpac 1 assembler. All boxed cash P.X or swap for anything Amiga related. Phone Reading. 0734 591407, after 5pm.

COMPUTER kid needs C16 + 4 software. Send your lists to 5 Woodside Cottages, Highwood, Chelmsford, Essex, CM1 3RD.

SPECTRUM software, with manuals, Masterfile £6. Printing utility £5. Zues assembler £5, Zues disassembler £5. Tel 07373965.

ATARI ST PD only £1 per disk, for your free catalogue, send an SAE to: Adrian Judd, 25 Windmill Way, Reigate, Surrey, RH2 0JB.

ST SOFTWARE for sale: Quartet, £25. STOS Basic, £7. STOS Maestro Plus, inc cartridge leads, £30. Hyperdraw, £7. ST Leisure pack: STAC, Hyperpaint II, Prince and First Basic, £18. ST productivity pack, £19. Phone Peter on 031 441 7952.

TDK 3.5" HD disks, box of ten, only £8 inc p+p. Ring 0908 220495. Also some TDK 51/4" HD disks.

JENNIX PD forget the rest we're the best! Over 400 disks of Atari PD for 90p each! Send 50p for our disk list and newsletter: N. Klee, Jennix PD, 66 Abbey Road, Strood, Kent, ME32 3QB.

C64 SOFTWARE sale over 100 titles, from 50p. Phone (0296) 82093 or SAE to S. Lacey, 2 Allonby Way, Aylesbury, Bucks, HP21 7JA for details. All with instructions.

PINEAPPLE PCB designer and PCB auto track routing ROM's for BBC B/ master £40. Tel Caernarvon. (0286) 3887.

AMIGA digi view gold 4.0 new £70. X Copy pro + hardware £25. ASS original software, boxed £6 each. Phone 0827 51738, after 4pm. Ralph.

◆ OTHER

BBC B with double sided disk drive sideways ROM board with lots of ROMs. Phone 0352 735194, evenings £185.

ARCHIMEDES 440, 4 megabytes of RAM, 20M, 5.25", 3.5" disk drives, colour monitor, PC Emulator, Zarch, 1st word +, etc. Worth £2000 +, no offers. £1400. Contact Sunil, 081 572 2789.

FOR SALE Spectrum 128K+2. Vast range of software. Kempston mouse, books on programming. All in good condition. Offers around £190. Phone Keith on (081) 949 6709 anytime.

INTEL COPROCESSORS		MEMORY!!!		IIT CoPROCESSORS AVAILABLE ON REQUEST	
80287XL.....£148		DRAMS		SIMMs	MODULES
80387SX-16.....£218		41256-80.....£1.20		1M*9-80.....£39.00	1M*9-80.....£40.00
80387SX-20.....£235		1M*1-80.....£4.00		1M*9-60.....£41.00	1M*9-60.....£42.00
80387DX-20.....£275		256K*4-80.....£4.00		256K*9-80.....£11.50	256K*9-80.....£12.00
80387DX-25.....£345		HIGHER SPEEDS AVAILABLE		256K*9-70.....£12.00	256K*9-70.....£13.00
80387DX-33.....£430					

No VAT to pay. Discounts available for larger orders. Add £3 P&P. Cheques made to: James East, 395 Lichfield Road, Sutton Coldfield, Birmingham, B74 4DH. Phone: 021-308-6224.

AMIGA games collection for sale: inc KO2, Awesome, Turrican 2, Golden Axe, D Paint 3, Music X, loads at really cheap prices! Just send SAE for full list, all original boxed, guarantee reply: 13 Bournville Lane, Birmingham, B30 2JY: (021) 459 7576.

C64 original software on cassette for sale, over 200 titles from 50p each. Over 200 titles from 50p each. For details send SAE to: John McLean, 71 Mansfield Crescent, Clarkston, Glasgow, G76 7EA Top titles like Robocop II, SCI, Creatures etc. Must go!

BARDS TALE III and The Eye Of The Beholder for the Amiga both with hint book £15 each. Tel 0302 350 175.

RAMBOARD for 1541-C Commodore, new with utilities and instructions, offers. Phone 0489 578634.

JEAN MICHEL JARRE. New high quality magazine on the french keyboard king, a definite must for all Jean Michel Jarre fans. For full details, please phone Ajay on 081 907 4166 or fax 081 907 0305.

EARN MONEY, complete disco for sale Citronic console, 5 speakers, lights, Mic 300 watt, output any gigs will be past on. First £500 no offers. Tel 021 554 6562.

JENNIX PD. We buy, swap and sell PD software Atari PD software, over 400 serious and entertainment titles available for 90p each. Send 50p piece (for magazine and disk) to: Jennix, 66 Abbey Road, Strood, Kent, ME32 3QB.

OLD COMPUTER hardware wanted. Any condition. Small price considered, joysticks, printers, keyboards etc. Send to Mr. D Littlewood, 33 Clay Flatt Lane, Rossington, Doncaster, S. Yorks, DN11 0AZ.

WANTED FOR CASH
We buy/sell P/X & repair IBM's, Amiga, ST, etc. Working or not.
DMR Electronics
0274 817889 or 881308

MEGADRIVE games for sale, Valis 3, Strider and Mickey Mouse, £25 each. Thunder Force 2 and Ghost Busters 315 each. All prices include p+p. Phone Andy on (0722) 326057

AMIGA education disks, Fun Schools, £8. Lets Spell, £8. Robot Reader, £6. Designa Saurus, £10. Gods, £4. BBC Emulator, £10. Phone 081 647 7323.

LEMMINGS and Armour Geddon originals for sale. Boxed with instructions, no use to me as I haven't got a computer! Two weeks old! Will accept best offer, no jokes! Phone Stuart (0992) 442071. (5pm - 11pm).

WANTED, Pinball Wizard for Amiga, must be full original version. Also full version of Twin Tris. Good prices for one or both. Tel Andy 0709 370155 after 6pm.

SCANNING SERVICE1 Atari Pi1 Format. £1 up to 5 images, + £1 disk. Haywood Milton Jnr. "Lakeside", 1 Glendyke Road, Liverpool, Mersyside, L18 6JR. Phone 051 724 4847, after 7pm weekdays.

ARCHIMEDES 420/1 £1000. BBC Master compact dual drives £150, both with software and leads. Telecom Merlin Printer £50. All three £1100. Telephone (0969) 22694. (Philip) buyer collects, North Yorkshire.

INTRODUCTION TO COMPUTERS basic course. Personal tuition only £12.50. Huddersfield. 0484 650452 (IBM and Amiga).

PCW AMSTRAD either model printer not needed, buy must be ok, otherwise and be very cheap for out of work/ hard up. Huddersfield. 0484 650452.

THE FACTORY

153 Silkstream Road
Burnt Oak HA8 0DE
Tel: 081-959 3438

ATARI ST Memory upgrades and repairs at very competitive prices.
FITTED 520ST to 1 Meg from £50 to 2.5 Megs £145 to 4 Megs £240. Internal 1 Meg Drive Fitted £55. Extensive Public Domain Library, disks from £1.50.
Send SAE and £1.00 for our disk catalogue and utilities.
Plus Software/Hardware Consultancy and Training.

Signed

WINDOW SHOPPING

The windows environment makes programming an easier task, but what languages and systems can you use? Mary Branscombe tells you what's new, how to use it, where to find it and what to read about it ...

Microsoft unveiled the new *Visual BASIC* programming system for *Windows* at the Software Tools 91 show. What you get is a language that looks like fairly standard *Quick BASIC* offering object oriented facilities. On top of that, *Visual BASIC* is an event oriented programming language and one of the first of its kind.

With *Visual BASIC*, you can program your computer to recognize events that are assigned to a window. So, if you wanted to have a signal sent through the COM port every time you clicked a *Windows* button – say to request some data from a database elsewhere on a network – then you could simply draw the button on the screen, give it an object name. That name enables both *Windows* and you, the programmer, to access it in future. Then you write procedure.

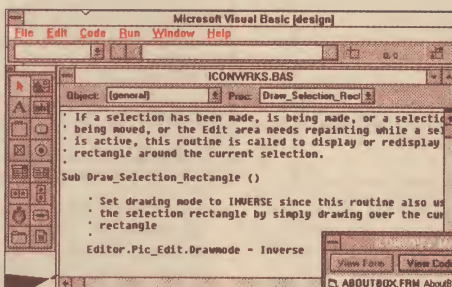
WHAT YOU GET

Microsoft is keen to stress that *Visual BASIC* is not a Fourth Generation language, but it does come as a complete environment.

- The Forms designer is a fairly complex application in itself. This lets you draw all the *Windows* icons and buttons and create text windows or windows that contain bitmaps. It takes about three seconds to draw and name a radio button. In *Microsoft C* that would be at least 30 lines of code. Because this is a *Windows* application itself, you'll also be sticking to the *Windows* interface guidelines.
- The event-driven BASIC compiler – based on *Quick BASIC*.
- Editing and debugging tools.

But can any BASIC program be converted and run under the new system? The answer, in all honesty, is no. Although *Visual BASIC* applications are remarkably easy to set up, there are still fundamental differences in

the way you would approach a program. Because *Visual BASIC* is event driven, whole programs revolve around what happens to, say, the mouse port or the COM1 port rather than using interrupt routines to search for activity in that particular part of the computer's hardware. Because most applications will sit around waiting for the user to move the mouse or hit a key, this is actually a very good way of writing an application.



• You work in *Windows* with *Visual BASIC* so it's easy to use

WHAT CAN VISUAL BASIC DO FOR YOU?

- Drawing up your user interface is fast and easy.
- The user interface is as good as if you coded it by hand.
- You're working in *Windows* so it's very easy to move from editing to testing to debugging - you don't even have to quit from *Visual BASIC* to run your application.
- *Visual BASIC* uses threaded p-code that means programs compile quickly.
- You can exchange information with other *Windows* applications using the Dynamic Data Exchange mechanism, so that you can build added functions on to existing applications. ■

WHAT'S NEW

• The official way to program *Windows 3* applications has always been to use the Microsoft Software Development Kit and a language like Microsoft C 6.0, which is all very well if you are a C programmer. Microsoft's release of *Visual BASIC* – a language based on their *Quick BASIC* that lets you put together the *Windows* part of an application by dragging icons around – shows that even they realise that not everyone who's interested in *Windows* is a C programmer. Lots of alternatives have been coming through the letterbox this week.

• *WINBASIC* is a version of *BASIC* that gives you ready-written code for many of the *Windows* functions. A new release, *WINBASIC 2*, lets you use the Dynamic Link Libraries (DLLs) to use the *Windows* Application Programming Interface, which contains many of the routines that let *Windows* applications talk to DOS. You can also get at the COM ports, for controlling printers and modems from an application. If you bought an earlier release of *WINBASIC*, you can get a free upgrade from Blackwell's on 0865 240201.

• Even though *dBASE* doesn't run under *Windows* (yet), you can use your *dBASE* code to create *Windows* applications with a new product from Megatech (081-874 6511) called *dBFast for Windows*. This uses existing *dBASE* code to build *Windows* applications that can have links to other *Windows* applications using the Dynamic Data Exchange mechanism. That means that if you are using information from your *dBFast* application to draw graphs in another package, you can update the information and the graph will change to reflect your new values.

Most *dBASE* commands and functions are supported, so you won't need to change your code very much. There are also some 200 extensions that give you mouse support and *Windows* features like pull-down menus, lists and buttons. Applications can create graphs and display bit-mapped images.

• If you don't already have *dBASE* code to work from, *Easy Windows* – from March Systems on 0734 404079 – builds *Windows* applications from a series of menus. As you choose icons and images from the design screen, the tables that will store the data in your database are created automatically. As if by magic.

• If you remember to take copies of your programs at the right time, you can do version control for yourself. That means that if you change your mind and decide to go back to that first working version of the program, it's in your archives, named and dated. Real life is rarely that simple and you may need some help. Many commercial version control systems are designed for large systems. *The Sorcerer's Apprentice* from Solutions Systems (0763 244141) is designed to work from inside the Brief text editor, which a good many programmers swear by.

Different versions of a program are numbered and stored in a source code library. Only the differences between the most recent version and the previous file are stored, so you won't need to use hundreds of disks. If you're working on a project with other programmers, you can lock old versions, so that two people can't make different changes to the same file at the same time.

UNDOCUMENTED DOS

Authors: Andrew Schulman, Raymond J. Michels, Jim Kyle, Tim Paterson, David Maxey and Ralf Brown • Publisher: Addison Wesley • ISBN: 0-201-57064-5 • £35.95

The manuals to a product tell you what it can do. If you want to know what you can do with it, a book is more likely to help. In the case of MS-DOS, the official manuals don't cover the most interesting bits – the *MS-DOS Encyclopaedia* from Microsoft Press tells you everything that it wants you to know. If you want to know about the functions that Microsoft doesn't want you to

know about, you need *Undocumented DOS*. One of the authors, Tim Paterson, wrote the original QDOS (Quick and Dirty Operating System!) that became MS-DOS – so you can rely on the information in these pages.

The book is organised in a similar way to the standard DOS technical manual, covering functions and data structures. It's full of examples, all of which are on the floppy disk that comes with the book. Not only do you get all the inside information on programming the operating system, but you also get some handy utilities, including on-line hypertext documentation for all DOS functions.

Evesham Micros

All our prices include VAT at 17.5% and Delivery

AMIGA SPECIAL DEALS

AMIGA 500 COMPUTER BASE PACK

Amiga A500 Base Package	£ 307.49
A500 as above, with our 512K RAM/Clock Upgrade fitted	£ 333.99
A500 Pack plus External 3 1/2" Drive	£ 357.49
A500 Pack plus External 3 1/2" Drive and 512K RAM/Clock Upgrade fitted	£ 383.99
N.B. Does not include extra games software	

Philips CM8833 Mk II, inc cable	£ 239.00
VIDI-Amiga inc VIDI-Chrome	£ 110.95
VIDI-Chrome-Amiga colour splitter s/ware	£ 16.95
VIDI-RGB colour input splitter for VIDI	£ 64.95
MiniGEN Genlock Adapter	£ 95.00
RocGEN Genlock Adapter	£ 114.95

Buy an Amiga Feature Pack From Evesham Micros AND YOU ALSO GET

THESE FABULOUS GAMES:

Tracksuit Manager '90 • Subbuteo • Diet Riot • Block Alanche • Battle Squadron • Lost N' Maze • Tank Battle • Discman • Jaws • Nigel Mansell
PLUS! A wordprocessor and spreadsheet

N.B. Not supplied with A500 'Base Pack' offers

CLASS OF THE 90's Package	£ 549.00
Class of the 90's plus 3 1/2" Ext. Drive	£ 600.00
Amiga 1500 STARTER PACKAGE	£ 949.00

CBM A590 20Mb Hard Disk	£279.00	Amiga 3.5" Internal Replacement Disk Drive	£ 49.95
A590 512K RAM Upgrade	£ 31.95	Amiga Virus Protector	£ 9.95
A590 1MB RAM Upgrade	£ 59.95	Stereo Sound Sampler inc. software	£ 29.95
A590 2MB RAM Upgrade	£ 99.95	MIDI Interface with In, Out & Thru ports	£ 19.95
A500 Replacement Power Supply Unit	£ 39.95	Golden Image Handy Scanner Package	£179.00
Trackball (works with Amiga AND ST)	£ 29.95	Kickstart 1.3 Upgrade	£ 29.95

AMIGA 500 1MB SCREEN GEMS PACK

INCLUDES 1MB RAM!

ONLY £369.99

Screen Gems Pack plus 3 1/2" External Drive ...
ONLY £419.99

ATARI®

'KICK OFF' WITH THIS DEAL FROM **Evesham Micros!**

EVEHAM MICROS PRICE PROMISE - WE WILL BEAT ANY GENUINE ATARI ST PACKAGE OFFER ON A LIKE-FOR-LIKE BASIS

FREE! With EVERY ST Pack

★ 'KICK OFF 2' ★ 'TRACKSUIT MANAGER' ★ 'SUBBUTOO' ★ 'FLIMBO'S QUEST' ★ 'TABLE TENNIS SIMULATION' ★ 'SKIDOO' ★ 'LEONARDO' ★ TOP QUALITY JOYSTICK ★ 10 X 3.5" DS/DD DISKS ★

TOTAL RRP OF EXTRAS: OVER £175.00!

All our ST prices inc. mouse, user guide, etc. PLUS 5 disks full of specially selected P.D. s/ware, inc. paint program, wordpro's, games, graphics & sound demos, desk accessories and utilities.

NEW! 520 STE 'DISCOVERY EXTRA PACK'

Special new package including the Atari STE, now available at a special new price! Includes the STE with 1Mb Drive, 512K RAM, full digital stereo sound, PLUS extra software including:

'Dragon's Breath' • 'Super Cycle' • 'Indiana Jones' • 'Anarchy' • 'Neochrome' • 'FIRST BASIC' • 'Atari ST Tour'

520 STFM 'DISCOVERY PACK'

Pack includes 520STFM computer, plus:
STOS Games Creator • Outrun • Carrier Command • Bomb Jack • Space Harrier • Neochrome • FIRST BASIC • Atari ST Tour • 'Discovering your Atari ST' Book

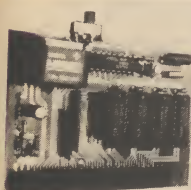
1040 STE 'FAMILY CURRICULUM PACK'

1040 STE including educational & productivity software:
Educational Software modules, split into three age categories, from Early School to GCSE revision. • Productivity Software featuring Wordprocessor, Database and Spreadsheet (RRP over £100) • Plus! Hyper Paint, Music Maker and FIRST BASIC

SM124 monochrome hi-res monitor	£ 129.95
Philips CM8833 Mk II, inc. cable	£ 239.00
Joystick Accessibility Adapter for ST's	£ 4.95

Reference 40Mb SCSI Hard Disk inc. PSU	£ 349.00	VIDI-ST & VIDI-Chrome video digitiser pack	£ 99.95
Reference 100Mb SCSI Hard Disk inc. PSU	£ 499.00	VIDI-RGB colour input splitter for VIDI	£ 64.95
Golden Image Handy Scanner Package	£179.00	Dust Cover - for any ST or MEGA	£ 4.95

AMIGA 500 512K RAM/CLOCK UPGRADE



Direct replacement for the A501 Expansion • Convenient On/Off RAM Switch • Auto-recharging battery-backed Clock • Compact unit size • Ultra-quiet design

ONLY £28.99

Available without clock for £24.99

A500 1.5MB RAM EXPANSION (requires Kickstart 1.3)... ONLY £89.95

Kickstart 1.3 upgrade available from us for only £29.95

NEW! MEGABOARD

Connects to your 512K RAM Upgrade to give 1.5Mb!

With the MEGABOARD, you can further expand your A500's memory to a total of 2Mb without disposing of your existing 512K upgrade (must be 4 x RAM-chip type, or not exceeding 9cm in length). Needs Kickstart 1.3 to operate.

Installation requires no soldering! **ONLY £64.95**

ST SIMMS RAM EXPANSION SYSTEM

- ✓ Fits Atari STFM and MEGA series machines
- ✓ Uses SIMMS RAM Modules for Effortless Upgradeability
- ✓ Probably the neatest ST RAM Upgrade available!

RAM Upgrade (unpopulated)	£ 59.95
RAM Upgrade With 512K RAM Installed - upgrades a 520 to a total of 1Mb RAM	£ 89.95
RAM Upgrade With 2Mb RAM Installed - upgrades a 520/1040/Mega1 to 2/2.5Mb	£ 174.95
RAM Upgrade With 4Mb RAM Installed - upgrades a 520/1040/Mega1 to 4Mb	£ 284.95

N.B. Due to the large variance in design of the Atari ST, there is a small minority of boards in existence which may require a little soldering.

PLUG-IN SOLDERLESS ST RAM UPGRADES

Two versions allow upgrade to 1Mb, or 2 / 2.5Mb • Simple, fast and effective RAM upgrade path • Suits any 520 or 1040 ST model (not STE machines) • Requires no soldering or technical know-how

512K VERSION : UPGRADES ANY 520 ST TO 1MB RAM **£ 69.95**

2MB VERSION : UPGRADES ANY 520 or 1040 ST TO 2/2.5MB RAM **£ 159.95**

ZY-FI amplified stereo speakers

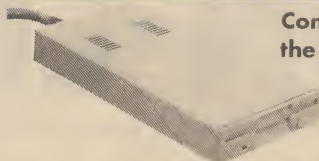
GOT AN AMIGA, ATARI STE, ARCHIMEDES, SEGA MEGADRIVE, ATARI LYNX OR NINTENDO GAMEBOY? THEN GET THE FULL SOUND POTENTIAL WITH THIS PAIR OF FULL RANGE SPEAKERS!

ONLY £39.95



3 1/2" EXTERNAL FLOPPY DRIVES

Compatible with the ST or AMIGA

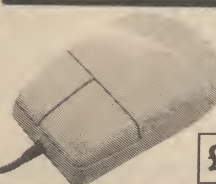


Very quiet • Slimline design • Cooling Vents • Sleek, high quality metal casing • Suits any Amiga or Atari ST • Full 1Mb Unformatted Capacity • Quality Sony / Citizen Drive Mechanism • Convenient On / Off switch on rear of drive • Long reach connection cable for location either side of computer

AMIGA VERSION ONLY **£54.95**

ATARI ST VERSION ONLY **£59.95**

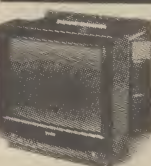
TRUEMOUSE (ST OR AMIGA)



WE GUARANTEE that this is the smoothest, most responsive and accurate replacement mouse you can buy for your Atari ST or Amiga. Excellent performance, amazing low price!

£17.95 SATISFACTION GUARANTEED

PHILIPS 15" TV/MONITOR



With its dedicated monitor input, this model combines the advantages of a high quality medium resolution colour monitor with the convenience of remote control Teletext TV - at an excellent low price! NEW Version features dark glass screen for improved contrast, plus full range 3-way speaker sound output.

£269.00 Including VAT, delivery & cable

Philips CM8833 Mk.II including ST or Amiga cable... £ 239.00

PRINTERS ALL PRINTERS INCLUDE CABLE & 1 YEAR ON-SITE WARRANTY

Star LC10 best-selling 9-Pin PRINTER, 144/36cps	£ 159.00
Star LC 200 9-Pin Colour, 4 fonts, 180/45cps	£ 209.00
Star LC 24-10 24-Pin multifont, 180/60cps	£ 215.00
Star LC 24-200 24-Pin multifont, 200/67cps	£ 249.00
Star XB24-10 Professional 24-Pin Inc.COLOUR Upgrade	£ 385.00
Olivetti DM100S 9-Pin, includes 1 Year on-site maint.	£ 115.00

olivetti DM124C 24-pin Professional COLOUR printer

Professional Quality 24-Pin Colour Printing - At an affordable price!

Offering advanced COLOUR output with the superior quality of Olivetti 24-pin printing, the DM124C represents excellent value! Consistent high quality is assured every time. Guaranteed Peace Of Mind, with 12 Months On-Site Warranty cover! 200 cps draft, 50 cps LQuality • 7 Colour output; Graphics resolution 360 x 180dpi • Complete with cable, Colour Ribbon and 12 MONTHS ON-SITE WARRANTY Olivetti DM124C Normal RRP: £ 389.95 inc.VAT

SPECIAL OFFER! £269.00 Including VAT and delivery

LYNX Portable Games Console

Only £99.95 INCLUDES POWER SUPPLY & GAMECARD OF YOUR CHOICE!

Electro Cop	£21.95	Rygar Warrior	£21.95	Gates-Zendocoo	£21.95
Sima World	£21.95	Zalor Mercenary	£21.95	Chips Challenge	£21.95
Klax	£21.95	Ms Pacman	£21.95	Shanghai	£21.95
Roadblasters	£21.95	Xenophobe	£21.95	Rampage	£24.95
Paperboy	£21.95	Blue Lightning	£21.95	Gauntlet 3	£24.95
Cigarette Lighter Adaptor	£ 9.99	Lynx Pouch	£ 9.99		
Sun Visor / Protector	£ 5.99	Lynx Kit Case	£ 14.99		

Evesham Micros

RETAIL SHOWROOMS

Unit 9 St. Richards Road
Evesham
Worcs WR11 6XJ
☎ 0386 - 765180
fax : 0386 - 765354
Open Mon - Sat, 9.00 - 5.30

5 Glisson Road
Cambridge CB1 2HA
☎ 0223 - 323898
fax : 0223 - 322883
Open Mon - Sat, 9.30 - 6.00
IBM Dealer • Corporate Specialist

1762 Pershore Road
Cottbridge
Birmingham B30 3BH
☎ 021 - 458 4564
fax : 021-433 3825
Open Mon - Sat, 9.00 - 5.30

ALL PRICES INCLUDE VAT @ 17.5% AND DELIVERY
Same day despatch whenever possible. Express Courier Delivery (UK Mainland Only) £6.50 extra

MAIL ORDER DEPARTMENT

Unit 9 St Richards Road, Evesham, Worcs WR11 6XJ



Call us now on ☎ 0386-765500

Lines open Mon-Sat., 9.00 - 5.30. Fax: 0386-765354
Technical support (open Mon-Fri, 10.00 - 5.30): 0386-40303

VISA

Send an Order with Cheque, Postal Order or ACCESS/VISA card details. Please allow 5 working days for Personal Cheque clearance.

Government, Education and PLC orders welcome
All products covered by 12 Months Warranty
All goods subject to availability.

The *Express* guide to computing at the grass roots level this week features PD libraries and User Groups

JOIN THE EXPRESS CONFERENCES ON ASPECTS (061-792 0260) AND CIX (081-399 5252)

FANZINES

PROJECT 'X' – Fanzine, club and shareware library for PC owners.

USER GROUPS

BULLETIN BOARDS

PD LIBRARIES

IMAGE ART PD – Specialising in
IMG format pics for DTP/other
categories. No games!! Send £1.50
for catalogue and disk, rechargeable
against purchase. 11 Ashleigh Point,
Dacres Road, SE23 2XL. Tel: 081-
291 4094.

Let all the world know

● Also, please let us know if any of the information on these pages is out of date.

PD LIBRARIES H TO Z

IBM SHAREWARE CLUB – Send blank disk for full list and details to 23 Houldsworth Rise, Arnold, Nottingham, NG5 8HZ.

JENNIX PD – Atari ST/STE Public Domain specialists. Over 400 disks from only 90p each. Send 50p for a disk list to Jennix, 66 Abbey Road, Strood, Kent.

JOEL'S PD GAMES – for Amiga users. PD disks only 90p each. For a catalogue send an SAE to Joel's PD Games, 389 Scalby Road, Newby, Scarborough, North Yorkshire, YO12 6TG. Please add a blank disk.

LAZER PD – 100 Amiga PD disks, 95p each. For catalogue/disk sent 95p (cheques/PO's payable to J Deavall) to: 57 Adamthwaite Drive, Blythe Bridge ST11 9HL.

LIGHTENING SOFTWARE PD CLUB – We can provide PD titles free of charge! Amiga only. For details send an SAE to Brian Roscoe, 14 Kingsmead Road, Moreton, Wirral L46 1QU.

MACH MAC PD – Explosively good public domain for the macintosh. £1 for demo disk and catalogue of over 900 disks. Write to MMPD, Highover, Udimore, Nr Rye, East Sussex.

MG SOFTWARE – £2 per disk of Atari ST Public Domain. Send me 95p for my catalogue of great stuff. Mark, MG Software, Connerways, Beckingham Street, Tolleshut Masor, Essex.

MY PD – Over 1200 disks at 99p each. For Amiga catalogue disk send 80p PO or cheque to Jagla, 92 Firtrees, Thurgoland, Sheffield S30 7BG. Tel 0742 884183.

NIGHTSHIFT PD LIBRARY – Clip Art, demos, exclusive samples, utilities, Atari ST. Send SAE and 50p for catalogue to Nightshift, 8 Bertelin Road, Beaconside, Stafford ST16 3JJ.

PERSPECTIVE PD – Free Amiga PD! Don't believe us? Try! Send 25p for a printed catalogue or 60p for disk catalogue. 6 Clover Close, Cumnor Hill, Oxford OX2 9JH.

PC SHAREWARE – At sensible prices. 50p to £1.50 per disk. Send disk with SAE to Rosie, 63 Springboig Road, Glasgow G32 0DB

PC-PD SHAREWARE – All disks £1.50. Postage £1 per order to PC-PD, GMC Computers, The Green, Cavendish, Suffolk, CO10. Tel 0787 280 526. Credit cards accepted.

PC SOFTWARE – PC Serve, 1147 Greenford Rd, Greenford, Middx UB6 0DP. Tel 081-864 2611, BBS 081-864 2633

PCW PD CLUB – Swap PD for PD, up to three disks full at a time. All PCW owners welcome. Write to 3 Moorend Ave, Chorley Wood, Birmingham, B37 5SD.

PD-X AMIGA PD – From 50p. Send an SAE to PD-X, 48 Sedgebrook Grove, Hull, HU7 5EB and we will send you a catalogue. Good quality Empire/UMS Data disks £3

PERFORMANCE PD – PD for the ST. 30

Prospect Road, Oulton Broad, Lowestoft, Suffolk, NR32 3PT. Tel: 0502 513923. Disk list £1. Cheques/POs payable to Performance PD.

POWER PD – 90p per disk. Wide range. Send 90p for current Amiga catalogue on 3.5 inch disk to Chris Jackman, 3 Albion Terrace, Lexham Road, Litcham, Kings Lynn, Norfolk.

POTENTIAL PD – for the Atari ST. Public domain to sell and swap. SAE to Helenville, School Road, Coldingham, Berwickshire.

PRESTIGE AMIGA GAMES (UK) – Amiga Games for sale or exchange. Large PD Library. Send SAE for full list to K Harvey, 67 Waverly Road, South Benfleet, Essex SS7 4AX.

PRIVATE COLLECTOR – Atari STE Public Domain. Over 300 titles. Send blank disk (or 50p) and SAE for list to: N Rodell, 72 Lancelot Avenue, Stroud, Kent.

PRIVATE SHAREWARE – Send blank disk and stamp for catalogue. Very Cheap. Write to Frank, Combe Rise, Luppitt, Devon, EX14 0RT. IBM only. Telephone 0404 891806.

PROPHECY PDL – Atari ST Public Domain. Send SAE and disk or a cheque for £4.50 to Prophecy PD, 390 Coulsdon Road, Old Coulsdon, Surrey, CR5 1EF.

R&G PD – For cheap Amiga PD send SAE for list to R&G PD, 23 Melmount Gardens, Strabane, County Tyrone, Northern Ireland or send a disk for list and game. Also willing to swap.

RICHARDS PD LIBRARY – Support for Amiga PD. A massive range of demos, utilities, music, AMOS, Slideshows etc. Most disks £1.50. Some £2.50. All disks dispatched as soon as we receive the order. 74 Cross Deep, Twickenham, Middx, TW1 4RB.

S&T PD for the ST. Large selection of PD from £1. Send £1 or a disk and 50p for a list. All prices include postage and packaging. Send cheque or PO to Simon Eve, S&T PD, 6 Crediton Road, London, NW10 3DU

SAINT JOHN'S SCHOOL LIBRARY PDL – Atari/ST PD software for sale or swap. Write to St John's School Library PDL, c/o Mark Ash, 54 Beaconsfield Road, Sittingbourne, Kent. ME10 3BB or telephone 0795 425653 after 4pm.

SAINT JOHN'S SCHOOL LIBRARY PDL – Atari/ST PD software for sale or swap. Write to St John's School Library PDL, c/o Mark Ash, 54 Beaconsfield Road, Sittingbourne, Kent. ME10 3BB or telephone 0795 425653 after 4pm.

SCOTSOFT INTERNATIONAL – For the ST. Send three first class stamps for disk catalogue to 47 Auchingane, The Tryst, Edinburgh, EH10 7HX. Disks supplied are branded.

SHAREWARE KING – 3,000 items of Shareware for PC, plus support, membership, plus discounts. SAE and blank disk for details to C Smith, 10 Penwood Close, Westbury, Wilts, BA13 3LW. Tel 0373 865263.

SHIELDSOFT PD – For the Amiga. Only 75p per disk. SAE for details to 13 Churton Road, Rhyll,

Clwyd LL18 3NB. Three month update. Personal service. Helpline for BASIC programmers.

SKYFALL PD – For the Acorn Archimedes. The world's largest PDL for the Archimedes. Send an A5 SAE or £1 for our demo disk to Skyfall, PO Box 2220, Birmingham B43 5RZ.

THE ST ADVENTURER'S PD LIBRARY – PD for all ST users. Adventure, more adventure and even more adventure. Catalogue disk just 50p. Write to John R Barnsley, 32 Merrivale Road, Stafford, ST17 9EB.

STAR PD – Software for the Atari ST/STE. Hundreds of disks available. Send blank disk and SAE for free PD and disk based catalogue to Star PD, 1 Solva Road, Clase, Swansea.

STATE 808 PDL – For ST art, demos (good selection) and games!!! Very cheap!!! Just send an SAE and disk to: State 808, 3A Old Lanark Road, Charluk, ML8 4HW.

STEVE'S AMIGA PD – Catalogue disk. See demos, play games, usable virus killer and a PD catalogue. Send £1 plus 9x4 SAE to Mr S Fitch, 1 The Croft, Welwyn Garden City, Hertfordshire.

STUPID FLOWER PD – new library for ST users. Send an SAE for a free catalogue to SFPD, 3 Read Mead, Glastonbury, Somerset BA6 8ON or call 0458 35027 and ask for Matt.

THE SURREY PD CLUB – Atari ST PD for only £1 per disk. Send an SAE to the Surrey PD Club, 25 Windmill Way, Reigate, Surrey RH2 0JB.

SWPD – PD software from 70p. Send SAE for

free catalogue. Atari ST only. SWPD, 50 Coombe Lane, Torquay, Devon TQ2 8EA.

SYSTEM PUBLIC DOMAIN – Archimedes. For 4 megs of the best graphics, RISCOS APS, utils, Drawfiles, sprites, games, music and samples send five formatted disks, an SAE and £1 to Highover, Udimore, Rye, East Sussex TN31 6BG. Cheques postal orders to Mr EJ Thomas.

TOTAL PD – for the ST. Send SAE for free catalogue to Total PD, 27 Stanmer Villas, Brighton, East Sussex, BN1

TRIPLE X – We are the only PD Library dedicated to ST Adult Software! £2 per disk. Write for your free catalogue! Triple X, Babak Ghazi, 3 Lansdowne, Carlton Drive, Putney, London.

TYPECAST PDL – Catalogue issue two out now. PD, DTP, WP, art and clip art for Atari ST/STE. No games. Send disk and SAE for catalogue to 31 Hartfield Crescent, West Wickham, Kent BR4 9DW.

WEST COUNTRY PDL – ST Public Domain and shareware. Large library. Send stamped addressed envelope and blank disk or £1 for catalogue to PO Box 2, Lynton, North Devon.

WHITE HEAD PDL – Atari ST PD from £1.40 per disk. Send two second class stamps for latest list to Hakan Akbas, White Head PDL, 15 Cavendish Mansions, Clapton Square, London

XT SHAREWARE for sale or swap from £1 for 5.25 inch and £1.20 for 3.5 inch disks. SAE for list to Kowalik, 24 West Chilton, Ferryhill, Co Durham DL17 0HH.

MAY AUCTIONS ROUND-UP

SOUTH EAST

● MCD (0932 788600)

20 JULY – Kempton Park Racecourse, Lower Staines Road (A308), Sunbury-On-Thames.

Auction starts at 10.30am. There is viewing and testing on the evening beforehand from 5pm-8 pm, and on the day from 9am.

● TECHNOLOGY COMPUTER SERVICES (081 651 3639)

13 JULY – Pickhurst Junior School, Pickhurst Lane, West Wickham

Auction starts 10.30am. Viewing and testing from 9am.

27 JULY – Kemnal Manor School, Sevenoaks Way, Orpington, Kent.

Auction starts 10.30am. Viewing and testing from 9am.

● TRADERDESK (0527 579120)

27 JULY – Harrow Leisure Centre, Harrow, Middlesex.

Auction starts 11am. Viewing and testing from 9.30am.

SOUTH WEST

● ABTEK (0722 413337)

6 JULY – New College, Helston Road, Swindon.

Viewing and testing from 8.30 am.

Auction starts 11am.

● TRADERDESK (0527 579120)

20 JULY – BAWA Leisure Centre, Filton, Bristol, Avon.

Auction starts 11am. Viewing and testing from 9.30am.

MIDLANDS

TRADERDESK (0527 579120)

3 AUGUST – National Motorcycle

Museum, National Exhibition Centre, Birmingham.

Auction starts 11am. Viewing from 9.30am.

STEVEN SHAWCROSS (AUCTION) LTD (061-789 3537)

9 JULY – Edgebaston Conference Centre, Birmingham.

NORTH EAST

STEVEN SHAWCROSS (AUCTION) LTD

(061-789 3537)

23 JULY – Newcastle-Upon-Tyne.

Phone nearer date for details.

BIDDING TIPS

● Prices at auctions can be quite a lot lower than in shops, but you will have to pay in full on the day.

● Make sure to get a catalogue before you go along. If you phone the companies they should be happy to supply you with one.

● Set yourself a limit.

● Give any items you are considering bidding for a good looking over and check if there is any warranty. If there is not you still have the rights of a second-hand buyer. Under the Sale of Goods Act you are entitled to a refund if the item is faulty or does not match up to the description given.

● Wait for the auctioneer to call the first bid. He'll come right down if no-one offers.

● Don't be tempted to outbid over the odds. You might come up against a dealer for whom a bargain is just a higher than normal margin.

SPOTLIGHT ON

YOUR GROUPS AND FANZINE

We receive a lot of information about PD libraries for this spot, but very little about groups and fanzines. So here is a request for all you editors and group organisers to get your pens out or printers whirring and get writing in.

Of course, what we're really after are groups and fanzines with a bit of a difference. So, if you're running a Dragon user group or put together a newsletter

for all Lynx loving footballers with pulled ligaments, tell us all about it.

So don't miss this chance to blow your own trumpet. Send all your fanzines, disk magazines and user group information to:

SPOTLIGHT, *New Computer Express*, 30 Monmouth Street, Bath, Avon BA1 2BW.

Piccies would go down a treat, too!

FANZINES A TO E

ABC AMIGA BEGINNERS' CLUB - PD library review. More info in beginners' pack. Send £1.50 to Ian, 110 Whitehill Park, Limavady, Co Londonderry, N.Ireland, BT49 0QG. Tel: 0504 765174

ACORN ARCHIMEDES.RISC USER 117 Hatfield Road, St Albans, Herts.

ACORN ARCHIMEDES Archive, 18 Mile End Road, Norwich NR4 7Q

AMATEUR RADIO (CBM) - Simon Lewis GM4PLM Commodore Radio Users Group, 69 Irvine Drive, North Clippens, Linwood, Paisley

AMIGA HELP CENTRE - A group to help novices. For CLI help disk and registration send £10 to Simdev, 29 Avon Square, Hemel Hempstead, Herts.

AMIGA HELPLINE SERVICES - Free club for young and old. Send SAE to G Keenan, 21 Skirsa Place, Glasgow, G23 3EE.

AMIGA LOST GAMES CLUB - We are setting up a demo to program Amiga games and send out notices to the different publishers so we need designers, coders, artists and musicians for the Amiga. Ring 0782 266964.

THE AMIGA TEAM - A group to help novices. Help given in programming - Assembly, BASIC, C, Logo, Pascal and CLI. For registration and introduction pack send £10 to 11 Beech Grove, Northallerton, North Yorks, DL6 1JY

AMSTRAD BUSINESS USERS - Amstrad Professional User Club, enterprise House PO BOX 10, Roper St, Pallion Ind Estate, Sunderland SR4 6SN. Tel 091-510 8787

AMSTRAD CPC USERS - Tony Baker, United Amstrad User Gp, 26 Uplands Crescent, Fareham, Hants PO16 7JY. Tel 0329 234 291

AMSTRAD CPC HOME USERS - Steve Williams, WACCI, 9 South Close, Twickenham TW2 5JE. Tel 081-898 1090

AMSTRAD LOCAL GROUPS - Amstrad Groups Federation, 4 Sutton Road, Gorton, Manchester

AMSTRAD PC SOFTWARE - Colin Smith, Colbar, 10 Penwood cl, Westbury, Wilts BA13

AMSTRAD PCW - Bob Ellis 'Rowan' 100 St Peters Close, Moreton-on-Lugg, Hereford HR4 8DW. 0432 761 860

AMSTRAD 1512/1640/PPC - PC Independent User Group, The Computer Advice Centre 87 High Street, Tonbridge, Kent. Phone 0732 771 512

AMSTRAD BUSINESS USERS - Amstrad Professional User Club, Enterprise House PO BOX 10, Roper Street, Pallion Industrial Estate, Sunderland SR4 6SN. Telephone 091-510 8787

APPLE II USERS - tel 051 9284142.

APPLE MACINTOSH. John Lewis, Macintosh user group, Macintosh House, 11 South Parade, Summertown, Oxford OX2 7JL

APPLE SYSTEMS - Irene Flaxman, Apple 2000, PO Box 3, Liverpool L21 8PY.

ARABIC COMPUTING - Rich Lackey, Arabits, 9 Bellview road, Worthing, West Sussex BN13 1EY

ATARI ALL MACHINES - Colin Hunt, BaPAUG, Wimborne Road, Oakdale, Dorset BH15 3EF

ATARI AND ST PC EMULATOR SUPPORT CLUB - SAE to 153 Parrock Street, Gravesend, Kent, DA121ER

ATARI PORTFOLIO - D Gilpin, Atari Portfolio User Group, 84 Cambridge Avenue, Gidea Park, Romford RM2 6QU. 0708 730764

ATARI ST DIY HDISK BUILDERS CLUB - information on how to build from scratch an HDisk system for your ST. Help given on what you'll need and how to connect it all up. Call

0495 272092

ATARI ST - Paul Glover, The ST Club, 9 Sutton Place, 49 Stoney Street, Nottingham NG1 1LX. 0602 410241

ATARI ST demos/PD wanted. If you can write demos or want exclusive titles. Write to ST Demos, 8 Bertelin Road, Beaconside, Stafford, ST16.

ATARI ST/STE HELPLINE - We can scan, digitalise and provide loads of clip art. SAE to Nist 53, Lenaghan Park, Belfast, BT8 4JB

ATARI ST USERS ASSOCIATION - provides support for all Atari ST/E users. Help and advice given. Quarterly club magazine and disk. Also exclusive PD library for members. For further information write to ASTUA, 18 Poplar Close, Biggleswade, Beds, SG18 0EW

BBC MICRO - BEEBUG, 117 Hatfield Road, St Albans, Herts AL1 4JS. 0727 40303

BASIC PROGRAMMERS' GUIDE - for all BASIC programmers. Phone Andy on 081-648 4326.

BATPUG - Turbo Pascal user group also open to other PC Pascal programmers. Costs £10 per year. Write to 12 Clegg Avenue, Cleveley's, Blackpool, FYS 9BJ. Send an SAE for sample.

BOMB OUT BROS - A new ST PD coding group wants new members to help expand our range of games, demos and utilities. Write to Adrian Speight, 25 Gilbert Crescent, LLaneli, Dyfed.

BRIDGE CENTRE AMIGA CLUB - A club not just for Amiga users but anyone who wants to become familiar with the Amiga. All age groups welcome. Games, music and educational software. PD software £1. Membership £3 a year and an additional 20p every Friday. Come to our meetings at the Bridge Centre, Haddington, East Lothian, Scotland every Friday.

C64 PD CLUB - E Masaba, 84 Garmoye Rd, Liverpool L15 3JH

C USERS GROUP - Francis Glassborow, 64 Southfield Road, Oxford OX4 1PA. For everyone interested in the C and C++ programming languages. Publishes a bi-monthly newsletter.

CAMBRIDGE Z88 - Roy Woodward, Z88 Owners' Club, 68 Wellington St, Long Eaton, Nottingham

CD ROM - UK CD-ROM User Group, High Wings, Salem, Treforys, Abertawe 0792 844 370

CHESHIRE 16-BIT USERS CLUB - Amiga, ST, PC, Arc at Radley Common community centre, off Poplars Avenue, Orford, Warrington, Friday nights. All welcome. £1 admission.

CHESS COMPUTER PROGRAMMERS and interested players send an SAE to Steve Roe, 25 Nene Walk, Worksop, Notts or ring BBS 0909 479080

CHOICE - on-line help. Tel 0308 23224

CHESHIRE NIMBUS USER GROUP - Geoff

Nelder, Queens Park High School, Handbridge, Chester

CHURCH ADMINISTRATION - Rev Stoker Wilson, Church Computer User Group, St John's Vicarage, Greenside, Ryton, Tyne & Wear NE40 4AA. 091-413 8281

CID (Computers and Integration for the Disabled) is a registered charity. Write to Gordon, Chelsea Road, Inverurie, Aberdeenshire, ABS 9QZ or tel 0467 24202

CLERGY/MEDICAL EDUCATION - Mr T Jones, FREE-ED Shareware/PD 85 Stoke road, Taunton, Somerset TA1 3EL. Tel 0823 321 481

CLEVELAND AMIGA CLUB - Thought our Amiga scheme should get organised. Tel 06542 252133 and ask for Barry or write to 30 Aske Road Middlesborough, Cleveland, TS1 4DA. No lammers. Hope to start PD club and fanzine.

CLUB A3000 - The largest Archimedes User Group in London! Visit our second open day on Sunday 23 June. For more details please contact us on 081-445 2126.

CLUB AMIGA answers your questions on software and hardware on its 24 hour helpline. Join now. Send £5 to Club Amiga, 5 Bowes Lea, Shiny Row, Tyne and Wear DH4 4PP.

CLUB M - Monochrome ST user group needs members. Dedication, enthusiasm and a sense of humour are the only membership fees. Small ever expanding PD Library. Write to CLUB M, 59 Maple House, Idonia Street, London SE8 4LT.

COBOL LANGUAGE - Allen Reavie 22 Mourneview St, Portadown, Northern Ireland. BT62 3AW

COLECO ADAM - Keith Mamer, UKAS 33 Homer Road, Croydon CXRO 7SB

COMMODORE ALL MICROS - Jack Cohen, ICPUG, PO Box 1309, London, N3 2UT. Tel 081-346 0050 after 6pm

COMMODORE 64 CLUB has been on the go for the last five months and new members are welcome. For more details send an SAE to The C64 Club, 20 Finlaw Place, Dundee, Scotland

COMMODORE AMIGA - UK Amiga Users Group. Contact 144 Charles Street, Leicester LE2 0OD. Telephone 0533 510066 voice; 0533 517615

COMMUNITY COMPUTING - Community Computing Network 2nd Floor, 35 Pink Lane, Newcastle, NE1 5DW. Tel 091-261 0317

COMPUCORP. Compucorp University users group c/o Compucorp, Cunningham House, Westfield Lan, Kenton, Middlesex

COMPUNET - write to Independent Compunet Club, 148 Furzehill road, Boreham Wood Herts. WD6 2DX

CONFERENCING - Compulink, suite 2, The Scantuary, 23 Oakhill Grove, Surbiton, Surrey KT6 6DU. Voice 081-390 8446. CIX BBS 081-

399 5252

CPM & MSDOS Users Group - 42 Birkbeck Road, Wimbeldon, London SW19 9NZ. Tel 081-543 0824

CRYPTOGRAPHY & CODES - Mike Barlow, American Cryptogram Association 5052 Chestnut Avenue, Pierrefonds, Quebec HB2 2A8 Canada

DATAEASE USER GROUP - High-Tech House, 10 Blackfriars Street, Norwich, NR3 1SJF

DISABLED - Jeff Hughes, Special Needs User Group, 39 Eccleston Gardens, St Helens WA10 3BJ 0744 24608

DESKPRESS USER GROUP - Is there one? Fancy starting one? If your answer is yes to either of the above, please write to me, Raymond Day, at 3 Hall Terrace, Willington, Crook, Co Durham, DL15 0QN.

DRAGON - Paul Grade, National Dragon Users Group, 6 Navarino Road, Worthing, Sussex or tel 0903 207585

ECONET - Michael Ryan, Econet User Gp, Balkeerie Cottage, Eassie for Forfar, Angus DD8 1SR

EDUCATION - Charles Shannon, TECUG, 35 Wellington St, Gravesend, Kent DA12 1JG. Tel 0474 567 931

EIGHT-BIT BACK-UP 8-bit user group for all 25p plus SAE. to: 8-bit back-up, 1 Northolme Close, Grays, Essex.

EINSTEIN - Graham Bettany, UKEUG 80 Dales Road, Ipswich IP1 4JR

EINSTEIN PD USER GROUP - Help and advice for all Einstein users. Over 100 disks of PD software. Send SAE to SW Knowles, 23 Howldsworth Rise, Arnold, Nottingham, NG5 8HZ

ELMSOFT PUBLIC DOMAIN SERVICE for the ST any weekend at Camden canal market, Haven Street, London

EMULATE. For Amiga, Amex. Monthly newsletter. Write to Pat 12b Northbrooks, Halrow, N Essex

ENTERPRISE - William Creaser, 6 Provident Street, Shaw, Oldham, DL2 8AQ. Independent Enterprise User group. Tel 0706 881382

ENTERPRISE - Tim Box, Independent Enterprise User Group, 50 Holdenhurst Avenue, Finchley, London N12 0HX. Tel 081-346 8032

ENET (like Econet) - T K Boyd, Enet (Amcom) User Gp, Seaford Cottage, Petworth, West Sussex

EUG - The Acorn Electron User Group. "The ELK is not dead yet!" Send large SAE for details to EUG 134 Great Knightleys, Basildon, Essex ss15 5HQ.

CONTINUED NEXT WEEK

SHOPPING EXPRESS BUYERS' GUIDE

While Shopping Express is undoubtedly the perfect way to track down the best bargains in the computer world, many people are still wary of buying products via mail order or through personal ads. This is probably because usually you are not able to have a look at what you are purchasing before you hand over your money.

We do everything in our power at this end to make sure that all the advertisements we run are above board. But here are a few tips designed to help take the risk out of buying via mail order or over the telephone.

- Be precise in describing what you want to buy. Leave no room for error. Feel free to go overboard in double checking details - make, model, specifications, colour, size, the page number and name of the magazine in which you saw the advertisement etc.

- Confirm the exact price of the article you are buying. If you are phoning a company check if there are any hidden extras, such as postage and packaging.

- Check how the item will be delivered to you and how long it should take. This is especially important with reader ads where delivery details are rarely mentioned.

- If you are writing off for the product keep copies of all letters. If you are phoning, note down details of when you phoned and who you spoke to.

- If possible enquire about guarantees and servicing. Check the supplier's policy on returns and refunds. With reader ads, it is best to make the effort to see the item personally before you hand over money.

- When possible pay by credit card for items over £100, as this provides extra cover under the credit card companies' own insurance schemes. Otherwise use a crossed cheque or postal order. Avoid sending cash at all costs.

The EVENT HORIZON

Who's doing what, with what, with whom, how, why and where...

THE PLACES TO BE ...

Making the Difference

Now - Tue 31 Dec
At the Science Museum, London. Info: 071 938 8080.

OIS IMC '91 Tue 2 - Thur 4 July
At the Wembley Conference and Exhibition Centre. Info: 071 931 9985.

PC World Forum Tue 9 - Sun 14 July
In Moscow. Info from Terence Coe on 010 1 508 820 8122.

International Music Show
Wed 10 - Sun 14 July
At the Olympia, London. Info: 071 730 7852.

The International 16 Bit Computer Show
Fri 12 - Sun 14 July
The show for Amiga, Atari and PC users is now in its fourth incarnation. Like the previous one, it will be held at the Novotel Hotel, Hammersmith, London. Visitors will be able to try out and

buy just about every conceivable piece of hardware and software. New products will also be launched in the home entertainment and professional areas.

As well as the buying public, overseas manufacturers will be there, looking for UK companies to accept distributorship of their products. 120 companies have booked space, including Amor, Checkmate, GFA Data Media, HiSoft, Memory Expansion Systems, Precision Software and Rombo. About 25,000 people are expected to turn up.

Advance tickets cost £3 - contact 0726 68020, admission on the day is £5.

GeoCon '91 Sun 11 - Tue 13 August
At Cambridge, MA, USA. Info: 010 32 03 234 3180.

Computer Animation Competition and Exhibition Wed 21 - Wed 28 August
At the Amiga Centre Scotland. Entries in by 31 July. Info: 031 557 4242.

Leeds Computer Extravaganza
Fri 13 - Sun 15 Sept
At the New Exhibition Centre at Leeds University. Info: 0532 677 657.

Business Computing '91
Tue 17 - Fri 20 Sept
At the Earls Court Exhibition Centre, London. Info: 071-486 1951.

Business Communications Awards

Thurs 10 October
At the Savoy Hotel, London. Entries in by 15 July. Info: 0800 800 847.

Image Processing '91

Tue 29 - Thurs 31 Oct
At the Birmingham NEC. Info: 081-868 9933.

System Builder Wed 30 - Thur 31 Oct

The Original Equipment Manufacturer show for system integrators, at Sandown Exhibition Centre, Esher, Surrey. Info: 0822 614671.

Computer Graphics '91

Tue 5 - Thurs 7 Nov
At the Alexandra Place in London. Info: 081-868 9933.

Desktop Cad '91 Tue 5 - Thu 7 Nov
As above.

All Micro Show and Radio Rally

Sat 9 Nov
At Bingley Hall, Stafford. Info: 0473 272002.

Computers in the City

Tue 12 - Thu 14 Nov
At the Barbican Centre in London. Info: 081-868 4466. ■

Golden Moments

A look back into the history of computing with Express. If it happened we reported it first.

ONE YEAR AGO

● IBM released the PS/1, a low-cost 286-based PC designed to knock back the clone manufacturers. Although a reasonably priced machine, and with a good technical spec, it was sadly lacking in expandability. A year later, with IBM holding only 9.3% of PC sales and with the ever-increasing number of third party PC manufacturers, the machine has obviously failed to tighten IBM's grip on the slipping PC market.

● Messages from the dead, including Winston Churchill and a comedian who may or may not have been Eric Morecambe, were received by Ken Limage via his trusty PCW8256. An American Indian predicted that England would win the World Cup in a final against Argentina. Sadly, there is as yet no comms standard between here and the otherworld. The Express team lost a fortune at the bookies.

TWO YEARS AGO

● The fastest computer in the world was launched in the US. The NCube was targeted at businesses as well as the more usual scientific establishments. It is 15,000 times faster than an Archimedes, but with 8,192 processors running in parallel, it has something of an unfair advantage.

● Fear of radiation from monitors obsessed 71% of computer users, a survey revealed. How many of these, we wonder, are afraid to sit down in front of the telly of an evening?

● The Queen of the Hackers, Lynn Doucett, was held in Chicago on charges of computer fraud. She had recruited a team of 60 teenagers across the country to aid her in her nefarious activities, which involved hacking into companies's systems and appropriating funds. She apparently recruited her underlings by means of bulletin boards which, as is well known, are great places to get to know people.

The Insider ...

A brief but regular look at the news and views of an industry which is desperate to be loved and then respected in the morning

A NEW FEATURE

It's certainly the month for marketing foot in mouth with the second boob in as many weeks coming from a marketing manager announcing an up and coming upgrade.

"Yes, we're confidently predicting version 3.6 just over the horizon," he gushed into the telephone.

"And what's the difference between that and version 3.4?" we asked.

"Erm...This one works," he said

CHINA IN YOUR HAND?

A recent trade delegation from the land of the bicycle and egg foo yong approached a switched-on Brit company with the idea of unloading a few tons of Chinese TVs on an unsuspecting UK market. The sample was positively state of the ark and

the distributor raised hand to mouth to stifle a yawn.

Over lunch, the delegation mused that while schools were allowed to spend their meagre budget on computer monitors, the much needed TVs were verboten.

Our hero dragged them off to a secret warehouse somewhere in the South East and while still digesting their smoked salmon and avocado, confiscated their briefcase full of Yuan (Chinese money) and sent them east with 10,000 Amstrad MP3 TV modulators to convert their legal monitors into naughty Television sets.

FAIR'S FAIR

The personnel director of a computer company in the US that offered an equal

opportunities staffing policy was revealed by a local TV channel to be a member of several right wing organisations including the Klu Klux Klan.

Was he fired? No siree, but the Klan are carrying the torch for him...

LIFE'S A BITCH

Two multinational companies climbed into bed together in a deal to share R&D and help each other develop products.

Company A provided the wherewithal for a power PC and forgot to write the small print small enough.

Company B noticed the lack of small print and saturated the European market with the PC seven months before and \$2,000 dollars under Company A's launch and price. Company B still promises to respect Company A in the morning!

If gambling is your thing and you are a Macintosh owning person, then you'd better get in touch with Fantasia Shareware immediately. They can supply you with a disc which will solve all your gambling problems in one foul swoop.

HAVE A MACFLUTTER

If you have incurred massive gambling debts and the ridicule of your friends and family, then a cheaper solution is at hand. Fantasia have several games discs for the Mac, one of which is entirely composed of card games.

It includes all the old favourites like

ADDRESSES, THE BITS YOU REALLY NEED

Fantasia
PO Box 1254,
Compton Martin BS18 6JX

Amiganuts
169 Dale Valley Road,
Holly Brook,
Southampton SO1 6QX

L.A.P.D. supply a wide range of ST PD
and can be contacted at;
80 Lee Lane,
Langley,
Heanor,
Derbyshire DE7 7HN

THE PD COLUMN

This week in Public Domain, Frank O'Connor finds a cure for compulsive gambling, a game for brain dead air aces and something for horror freaks...

bridge and solitaire as well as variations on the card game theme. If you want to lose imaginary money to an imaginary opponent, then play *Bill's Casino*. Bill is the author of the program in question and has taken considerable artistic license in calling the prog a "casino".

It is in fact only two games, Blackjack and Jackpot. Blackjack is the American name for Pontoon and the computer plays a mean game. It plays the standard dealer rules - stick on seventeen and twist on anything lower. Sounds easy, but I'm pretty sure the computer cheats. It has an uncanny ability to deal itself royal pontoons and five card tricks with astonishing regularity.

Jackpot is a cheap way to lose money. Cheap, in that the money in question is computer generated. Pop the money in the slot of a very ugly one armed bandit and pull the lever. The object of the game is to, well, win loads of dosh I suppose, but as you can't actu-

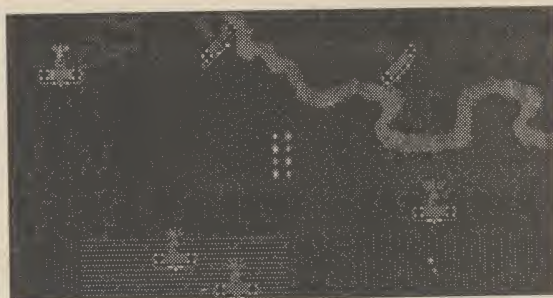
ally spend any of it, the point of the exercise is somewhat lost. Still, it is mildly entertaining and passes the hours quite merrily for a time.

If you do contact Fantasia, you should ask about *Enchanted Menus*. It's quite an old program, but it could make a wonderful practical joke. Once installed, it makes menus shift around in a most alarming manner. Very infuriating for the user and very amusing for the prankster responsible.

SERIOUS MONEY

If you can afford to own an IBM PC, then you won't need to read the next bit, but if you have access to one and you want to get rich quick then read on. It isn't guaranteed, but apparently there's a dead easy way to make million pounds.

Interested? Thought you might be. All you have to do is win the pools! Simple eh? Apparently, all you have to do is forecast the results exactly of several football matches, hoping that at



• Air Ace 2 is probably the best free shoot-'em-up you are ever likely to see on the Amiga. Definite shades of 1942 here, I think!

WHY WASTE MONEY?

JUST LOOK WHAT YOU CAN GET FOR

£2.50 +50pp

GAMES

China Challenge 2 (Great Sequel)
Missile-Command (In Hi Res)
AirAce 2 (Best PD Shootem up ever?)
Squares Game (EXCLUSIVE RELEASE)

UTILITIES

Master Virus Killer 2.1 (The Best)
TextPlus 3 (The Latest Word Pro)
Spectrum Emulator (Your Joking!)
Utility Boot maker (Essential)

TOO GOOD TO BE TRUE?.....KEEP READING ON

See great DEMOS like...Harlequin - Overdose - Dexions Blind Justice
How about some great Articles and Reviews and even Free Competitions

INTERESTED?... THEN WHY NOT TRY ISSUE No 2 OF

S C A N N E R

The 2 DISK magazine for the Amiga that leaves the rest standing still

Please Cheques/P.O.s payable to N. JORDAN and post now to
TELESCAN COMPUTER SERVICES (NCE)
Handsworth Road, Blackpool, North Shore FY1 2RF

least eight of the matches you choose are no score draws.

If your maths is a bit off then you should know that the chances of getting it right are pretty small. This program changes all that by doing the maths bit for you. It's not foolproof and by no means delivers results, but it does cut down the chance factor.

It's very easy to use and will get your hopes up every week, only to dash them at the weekend. Invaluable.

BOMBS AWAY CHAPS

Amiga owners are in for a treat this week. Amiganuts, kind chaps that they are, sent in a disc packed full of games, one of which is the best PD shoot-em-up ever. Er...probably. Called *Air Ace 2*, it sees you as the pilot of a World War 1 bi-plane, flying deep into enemy territory and giving the Hun the kicking they so richly deserve.

It follows in much the same mould of classic shoot-em-ups like *1942* and *Slapfight*. The bad guys zoom down in formation from the top of the screen (and occasionally from the bottom), swooping, diving and loosing off bursts of machine gun fire in your direction.

It all gets very frantic very quickly and it soon becomes a case of autofire on and brain off (or vice versa, depending on how good you are). The graphics are quite lovely for a PD title and scroll smoothly and quickly. The backdrop of

verdant jungle terrain is wonderfully drawn and suits the game perfectly.

Sprite animation is superb, especially the end of level guardian (look, it's the Goodyear Blimp), a massive and imposing dirigible.

The sound effects are outstanding; lots of sampled voices and explosions, all beautifully implemented.

The game has a very high quality feel and wouldn't look out of place at full price as an arcade conversion. It is completely free!

All in all a noisy, frenetic and ultimately wonderful game. But that's not all! It comes on a disc packed to the brim with a selection of equally wonderful games. Wow!

AMIGAVILLE HORROR

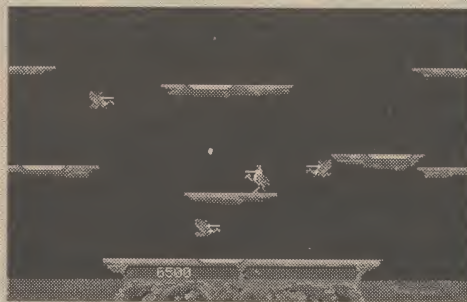
Amiga sickos where are you? Come on, we know you're out there, lurking in the shadows, pondering thoughts of inexplicable violence and gore.

Instead of festering away in the cesspit of your mind, you should scope out a particularly gruesome piece of software from New Wave.

It's an animated digitised slideshow of schlock horror gore, featuring snippets of famous horror films, including the all time classic *Scanners*. This bit features the part where a guy's head explodes.

Not nice, not wholesome and not the kind of thing you'd show to your maiden aunt. ■

COME JOUSTING



• An ancient William's coin-op makes an appearance on the ST and very good it is too. Ostrich jousting was never so much fun. Weird indeed and weirder still is that Atari have released the official version of Joust on the PD scene!

ST gamers are about to be presented with one of the greatest games of all time. Now available on the PD circuit is the ancient arcade classic *Joust*. The disc was sent this way by L.A.P.D. in Derbyshire. I'm not entirely sure what the deal with this disc is. It seems to be the official version, programmed by Atari themselves, just why it's available on PD is a bit of a mystery.

No complaints from this direction though, as getting one of the bestest, weirdest, nairest games ever for free is hardly a problem. *Joust* is weird though. You control a knight, who rides just about the strangest mount ever. It's a flying ostrich. No seriously, and it's set in a mystical medieval time when lance-bearing knights did that kind of thing all the time.

The point of the game is to navigate the bird from platform to platform, knocking out opposing knights as you go. This is quite tricky. To fly, you tap the fire button repeatedly to flap the ostrich's wings. You can then move left and right as you rise.

To take out a bad guy, you have to be higher than him and land your bird on his head. This can be difficult, as the platforms bounce you around when you hit them. Dead birds drop eggs, it's a good idea to catch these for bonus points. If left, the eggs hatch, revealing more dangerous birds and knights to go with them.

The graphics are simple and attractive. Weird is definitely the watchword here though and this game will keep you up into the wee small hours of the night. It's a perfect conversion of a perfect coin-op and you can't say fairer than that can you?



AMIGANUTS UNITED

169 DALE VALLEY ROAD, HOLLYBROOK, SOUTHAMPTON, SO1 6QX.

Tel enquiries: 0703 785680. Mail Order Only.

AMIGANUTS ARE THE OFFICIAL UK DISTRIBUTORS OF THE T.BAG DISKS AND THE LATEST ISSUES ARE ALWAYS AVAILABLE FROM US FIRST.



AMIGANUTS ARE PROUD TO INTRODUCE THE EXCELLENT 1 MEG EIGHT OR FOUR CHANNEL MIDI COMPATIBLE OctaMED
NOTE THAT AMIGANUTS UNITED HOLD THE WORLDWIDE COPYRIGHT TO THIS PROGRAM AND IT WILL
NOT BE AVAILABLE THROUGH ANY OTHER SOURCE.

THE PROGRAM IS OF SUCH HIGH QUALITY THAT WE COULD EASILY HAVE PUT IT ON SALE FOR £50 OR MORE!

However, Amiganuts and the author, Teijo Kinnunen, want it to be within the reach of all Amiga enthusiasts, so we are keeping the price down. You can purchase this great program for only £10.00 within Europe (£15.00 for non-European). The price includes return post and packing. Payment in pounds sterling only, if ordering from overseas, send a bankers order/eurocheque etc. (Credit card orders will not be accepted). A full instruction manual for this program will become available later, but due to the high costs involved, it will be quite expensive!

HERE IS A SELECTION FROM OUR LICENCED PROGRAMS, THEY ARE ONLY AVAILABLE FROM US

BUG-BASH: Get that garden tidied up! An excellent kids game.....	£3.00	NUCLEUS: A budget shoot-em-up that will keep you occupied.....	£3.00
1036: AMIBASE PROFESSIONAL II. The new additions to this database make it a must have, includes picture addition facility. (1 Meg).....	£3.50		
876: QUIZMASTER. Think you know it all? Well now you can prove it. Save and re-load facility. For 1 to 4 players. Excellent!.....	£3.00		
877: 1 ACROSS 2 DOWN. A fully fledged crossword program, (Data disk no. 1 supplied free!), for only £5.00. Data disks 2, 3, 4 are £2.00 each			
INTO CODING? - Want to learn? The Amiga Coders Club is for you! Acc 1/4 is the first four compressed issues of an excellent series for coders, even if you are new to the Amiga, if you want to learn Assembly, using Devpac, (or our own ACC Special), this is the club for you!.....	£1.50		
The Amiga Coders Club disks are packed with source, hints, tips, advice from many of the well known coders that are on the Amiga scene today. Issue numbers 5 to 13 now available. Please note, (excluding the compressed introductory disk no. 1/4), Amiga Coders Club disks are £3.00 each.			
ACC issue 12 is our birthday issue, it is a 2 disk set, order this before August 12th and you can have both disks for the low price of.....	£3.00		
AMIGA CODERS CLUB SPECIAL! At last a low priced Assembler package for all you coders out there in Amigaland. (Available now!).....	only £5.00		
1038: SUPER AMIDASH. Remember that good old Commodore 64 game Boulderdash? Well here is your chance to have that fun again. 1 Meg.....	£3.00		
1068: MOD PROCESSOR V1.91. Make Picture and/or Music progs, adjust pic height/width. This version will load 8 Channel OctaMED music.....	£3.50		
1075: Intuimenu. The easiest way to run all your programs.....	£3.00	1077: CLEAR. A very good, but hard, game from PH software.....	£3.00
1083: COPPER WRITER/Screen designer (for programmers only).....	£3.00	1088: WEIRD IN EDGWAYS. Real mind-boggling puzzle game. 1 Meg.....	£3.00
1100: SCHOOL TIMETABLE CREATOR. (Print your timetable). 1 Meg.....	£3.00	1102: THE SPRITE DESIGNER. An easy way to draw/save Sprites.....	£3.00
BELOW IS A SMALL SELECTION FROM THE THOUSANDS OF PUBLIC DOMAIN/SHAREWARE PROGRAMS THAT WE HAVE COLLATED OVER THE PAST FIVE YEARS.			
MED/OctaMED SAMPLES PACK. Six disks that are packed with SAMPLES for use with this excellent music utility, (note one is VERY RUDE).....	£8.00		
971: THE MASTER VIRUS KILLER. It recognises and kills over 120 of the pests + other excellent features. (Includes hard drive protect).....	£2.50		
990: AMIGA C CLUB MANUAL V2 is now here. Loads more info, source and help from Anders Bjerin. Now Auto-Booting and on four disks.....	£6.00		
996: The latest and easiest setkeys prog to re-define your keymaps. Plus a host of other utilities, (Icon Design, IconLab, ClipIt etc).....	£2.00		
1047: TEXTPLUS V3.0EN is here! The extra facilities on this new version are unbelievable and would take half a page to describe!.....	£3.00		
1080: VIVALDI. "The Four Seasons". This is an excellently produced two disk classical music set by Rob Baxter. A must for classic fans.....	£4.00		
576: EDUCATION for the children. Includes Blackboard Maths.....	£2.00	1084: THE ART OF MED! 10 great med toons that run for hours.....	£1.50
640: 8 GAMES, including The Train Set and XFire. Very good!.....	£2.00	1087: IMAGES FROM AQUARIUS V2. Well presented pic/music disk.....	£1.50
700: D-COPY V1. Excellent disk copier with full instructions.....	£2.50	1090: MASTER OF THE TOWN. 1 or 2 player smash 'em up game.....	£2.00
741: NorthC V1.3 (2 disks), a must for all you C Coders.....	£5.00	1091: AN EXCELLENT LETRITX GAME from the famous paradox team.....	£2.00
907: SNAKES & LADDERS. The family game. 1 to 4 players. 1 Meg.....	£2.00	1092: Another well presented graphics disk by Chris Hill.....	£1.50
933: A-GENE Genealogy. The very latest & best V3.125. 1 Meg.....	£2.50	1093: GOLF RECORDER. Keep scores/results/data on your games.....	£2.00
1032: AMI-FX 3. Third in this fractal series. (3 disks) 1 Meg.....	£4.00	1097: This one contains two of the best demos we've seen!.....	£1.50
1037: GAMES. Klondike (great version). Simon (fun for kids).....	£2.00	1098: THE CROSSWORD CREATOR. Make your own and print them out.....	£2.00
1040: BALLOONQAY. An excellent game for the children. 1 Meg.....	£2.00	1099: AMIGAHOICS DISK MAGAZINE issue 1. (introduction price).....	£1.00
1052: DRIFTERS DEMO. "The Prisoner" & "Six of One" are great.....	£1.50	1101: DARKSTAFF. Spectrum emulated adventure game. (Not bad).....	£1.50
1103: A VERY SPECIAL 4 DISK/5 MEG ANIMATION FROM THE FAMOUS TOBIAS RICHTER. THIS IS AN EXCELLENT AND LONG RUNNING ANIMATION. (5 MEG).....	£6.00		

FREE DISKS + FREE PROGS + FREE MEMBERSHIP - OVER A THOUSAND DETAILED PROGS PLUS SOME GAMES TO PLAY ON THE MAIN CATALOGUE DISK. ONLY £1.00

Main catalogue disk sent "FREE" with orders above £15.00 - Please remember to ask for your free copy if you send in an order above £15.00

Prices quoted include return post and packing - Make cheques etc. payable to:

AMIGANUTS UNITED

(We do not accept credit card orders). The third 1991 update to our main catalogue is now ready for £1.00 (The update contains only the 1991 additions to the library).

IMPORTANT! POSTAL PD have advertised our copyrighted programs, (OCTAMED etc), they are NOT LEGALLY available from them or any other outlet.

P&P add £1.00 per item (UK). Overseas £2.00. Cheques/P.O.'s payable to Games Galore **Total**

IT'S YOUR WORLD

PRODUCT: 3D Construction Kit
MACHINE: PC Amiga ST
SUPPLIER: Domark
CONTACT: 081-780 2222 or your local software dealer

3D Construction Kit is a simple-to-use three dimensional environment. It lets you design buildings landscapes and even full worlds. You can settle for 3D design or progress to developing games. The accent is on a suite of software driven by on-screen prompts, icons and menus. This is important to a user who wants results with the least effort.

WHAT'S THE USE?

Two main uses of 3D Construction Kit are as a designer, allowing the user to express a concept in 3D and move in and around it, and as a game designer, letting good game ideas be translated into the Freespace environment without weeks of complex coding. Freespace was popularised in the games Driller, Dark Side, Total Eclipse and Castle Master.

PRODUCTIVITY

The 3D Construction Kit is a fun way to achieve productivity in design and environment with the least work.

There are two things to run on the single disk. There's a demo game and an editor. When you run the editor, you are faced with a main screen from which options can be accessed. The bottom 40 per cent of the screen is taken up by a panel of icons that allow you to access menus and take short cuts in the planning and creation of your design.

VIDEO TUTORIAL

There's a short VHS video cassette tutorial. This leads you through the first steps of using the 3D editor by example, showing you what to do and what will happen if you do it. Objects are made by creating a shape from a menu, dragging it to shape and moving it into position. Complex designs and shapes can be made from simple ones and are easily manipulated.

Objects are made from a palette of 16 colours that become 256 using dithering techniques.

If you want to add life to your creation there's a command language to cover 'what if'. This could be something simple like a cupboard opening, something a little more complex like an object moving when shot, or a condition that moves you to another location when you touch a door panel giving the impression going through a door to another location.

A command language sounds daunting, but the

DRILLER THRILLER

When Incentive launched *Driller*, the first game in *Freespace* was a three dimensional environment that allowed you to go over, around and through a game. *Freespace* was popular in puzzle games with emphasis on solving visual riddles rather than lightning reflexes.

3D Construction Kit opens the *Freespace* door to produce your own ideas in animated 3D.

Fed up with planet Earth? 3D Construction Kit enabled Virtual Keith Pomfret to explore a reality all of his own devising...



• The 3D Construction Kit game shows you what you can make using a few shapes and your imagination. The short cut control panel means scenes can be built in minutes.

one in 3D Construction Kit is a logical instruction set that can be easily mastered. This part of the program that relies most on the manual. Commands IF ACTIVATED, THEN, ELSE, and ENDIF have their function mapped. The 50 commands cover everything from trigger function to animation.

At the top of the screen there are four pull-down menus for File, General, Area and Object. They intuitively guide you through the different controls necessary to build your own world. These are mirrored in the manual in a graphical way that shows you the position of the commands on the menus and explains their function. If you want to find a function in the program, all you need is look it up and the graphic next to the description shows you where it is and what it does.

THE VERDICT

A combination of the command language, easy to use icons, good documentation, and pull down menus make 3D Construction Kit a powerful program that can be used by anyone of average intelligence and imagination, with patience and time on their hands. ■

MACHINE SPECIFIC

We tested on the ST, but versions are also available for the Amiga and the PC. All of the versions share the same manual. Other than a no mouse option for the PC, and a choice of either joystick or cursor cluster operation, the only visible differences are the sound. The ST and Amiga can utilise sampled sound while the PC is limited by the diminutive PC beep.



• 3D design gives a distance perspective in the shuttle bunker.



• With animation, the sideways-moving shutters make walking the plank a dangerous game.



• There's danger in the tunnel. The pyramids on the ceiling are set to drain your life forces away.

FOR AND AGAINST

FOR

- ▲ Easy to use
- ▲ Brilliant results for little effort
- ▲ Intuitive

AGAINST

- ▼ Runs slowly in game mode
- ▼ Expensive



Games Week

Och aye the noo ... it's Stuart Campbell getting down to some serious game playing interspersed with news, tips and irrelevant information.

Gary Penn is dead. (See the current issue of our sister mag *Amiga Power* for more details). I happened to be walking past the NCE office when the news was broken to them, so the onerous task of taking over **Games Week** has fallen to yours truly. Big though they are, I'll be filling Gary's boots from now on, so it's a big welcome from all of me to all of you (especially Simon Richards of Twickenham - stand by for loads more trash, Simon), and straight on with all the news. If you know anything I don't, give me a call.

PLAY IT AGAIN



• *Impossamole* - out soon on Gremlin's GBH.

The latest addition to the ranks of full-price re-release budget labels is Gremlin's *GBH*. The first reruns on this new back-catalogue milker will be *Super Cars*; Core Design's platforming disaster *Impossamole* (the *Rick Dangerous* re-write and supposed triumphant return of Monty Mole that didn't quite work); and *Footballer Of The Year 2*, a strange mix of arcade action, management strategy game, and football trivia quiz. All three games will sell at the now-traditional £7.99 price point on Amiga and ST, and will be hitting the proverbial streets sometime in July.

TOPICAL TIP OFF

Bad news for 16-bit fans as, following on from Anco's decision not to produce forthcoming Dino Dini basketball sim *Tip Off* on computer formats (or have they?), veteran software publisher Elite is seri-

ously considering scaling down Amiga and ST developments and concentrating on console games, particularly for the Nintendo. This won't affect planned releases for this year (including European Championship 1992, a re-titled conversion of Tecmo's phenomenally popular World Cup '90 coin-op), but lower costs and higher profits mean that in following years home micro products could be thin on the ground.

SPEEDBALL DREAM

C64 owners will probably faint with delight on hearing that the Bitmap Brothers' classic of sporting mayhem *Speedball 2* is due out on their machine any day now. We've seen a nearly-finished version, and despite some pretty average graphics, the game plays like an absolute dream. Watch out for it, you're going to love it.



• *The calm before the storm* in *Speedball 2*.

CHEAPER BITS

Spooky happenings in the budget world, as a range of Amiga, ST and PC games have just gone on sale at a price point lower than many 8-bit cheapies. Prism's Pocket Power range comprises 16 Amiga, 13 ST and 3 PC games so far (with many more due in the next couple of months), all re-releases, and retailing at just £2.99.

TOP 10 SIXTEEN-BIT GAMES

THIS LAST WEEK	WEEK TITLE	PUBLISHER	MACHINE
1	NE <i>F15 Strike Eagle</i>	Mircoprose	ST AG PC
2	NE <i>Full Contact</i>	Team 17	AG
3	1 <i>Eye of the Beholder</i>	US Gold	ST AG
4	NE <i>Sonic the Hedgehog</i>	Sega	OT
5	4 <i>3D Pool</i>	Mirror Image	ST AG PC
6	3 <i>PGA Golf Tour</i>	Electronic Arts	AG PC OT
7	6 <i>Lemmings</i>	Psygnosis	ST AG PC
8	5 <i>Xenon 2</i>	Mirror Image	ST AG PC
9	2 <i>Lombard RAC Rally</i>	Hit Squad	ST AG PC
10	12 <i>North and South</i>	Digital Integration	ST AG

ST = Atari ST AG = Commodore Amiga PC = IBM PC or compatible OT = Other Chart compiled by Gaiup. © European Leisure Software Publishers Assoc.

• *Amiga, ST and PC games costing less than some 8 bits including Plutos* - a snip at £2.99.

As you might expect, many of the games are of very poor quality, but there are some real pearls hidden among the swine. Check out *Frost Byte*, *Plutos*, *Football Manager* (ST version only) and *Quantox* (Amiga only) for some quality software at a price that would make some PD companies blush.

MORE FOR GAMEBOY

The fast-growing ranks of *Gameboy* owners will be pleased to hear of some new official releases for their software-starved (unless you buy grey imports, that is) machine.

The latest batch includes *Bugs*



Bunny's Crazy Castle, *Burai Fighter Deluxe* (an adaptation of the NES game), *Dr. Mario* (a Tetris-like puzzler) and *Nintendo World Cup*, a football game (so no surprises there), as well as versions of *Chess* and *Battleships* for slightly more cerebrally-minded. Hopefully I'll be reviewing a few of these very soon. ➤

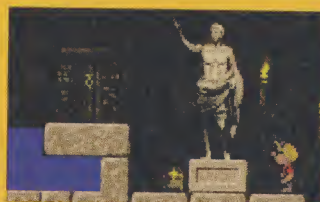
BEG, BORROW, AND BURN

Your at-a-glance guide to the recent must-haves, might have, and manky old duffers in the world of software.

BEG - whatever you do, get a copy of this, even if you have to sell your body on the streets to do it. (Or if you're smart, someone else's.) *Switchblade II* (Gremlin) - A huge epic of arcade blasting and platform action, this is the game that won't make you ashamed to talk to a MegaDrive owner.



▲ *Get down and beg* for *Switchblade II*.



▲ *Worth borrowing* - P.P. Hammer And His Pneumatic Weapon.

BORROW - you might like this, and you might not. Take a look and make up your own mind.

P.P. Hammer And His Pneumatic Weapon (Demonware) - A pretty and unusual derivative of the 8-bit classic *Lode Runner*, P.P. suffers from some sloppy design and over-complication, but it's the kind of game that can keep you coming back for months. Check it out.

BURN - if someone gives you a free copy of this, smash them repeatedly about the head with a heavy object until they take it back and incinerate it.

Hydra (Domark) is not the most inspiring coin-op ever, but this conversion is so utterly lame it's not even worth the price of one go on the arcade game. Tie it up and chuck it in a river.



▲ *Burn it, drown it or smash someone's head with it* - the *Hydra* conversion.

HATSTAND CORNER

Impress your chums with Irrelevant but interesting snippets that'll make you the most well-informed games fan on the block. This week: Chuck Rocks. Charles 'Black Francis' Thompson plays video games. 'So what?', I hear you cry, 'so do I'. Well, that's as may be, but you're not the singer of top-notch indie rockers The Pixies, whose new 'Planet Of Sound' EP contains a track called 'Theme From Narc', an interpretation of the music from the Williams coin-op converted last year by Ocean. Coincidence or what? I think we should be told.

TOP 10 EIGHT-BIT GAMES

THIS WEEK	LAST WEEK	TITLE	PUBLISHER	MACHINE
1	2	Quattro Cartoon	Codemasters	SP CO AM
2	1	Magic Land Dizzy	Codemasters	SP CO AM
3	5	Multimixx 1 Golf	KIXX	SP CO AM
4	4	Dragon Ninja	Hit Squad	SP CO AM
5	3	Dizzy Panic	Codemasters	SP AM
6	6	Double Dragon	Mastertronic	SP CO AM OT
7	7	Paperboy	Encore	SP CO AM OT
8	9	Continental Circus	Mastertronic	SP CO AM
9	11	Euro Boss	F&J	SP CO AM
10	NE	Professional Footballer	D&H Games	SP CO AM

SP = Spectrum CO = Commodore 64 AM = Amstrad.
Chart compiled by Gallup. © European Leisure Software Publishers Assoc.

CJ'S ELEPHANT ANTICS

Code Masters • Amiga, C64

For an infinite supply of the cutest character currently doing the rounds, simply type the following words (it's a bit rude, so this is it in reverse): 'SELOHESRA YHCTI' (including space) on the title screen. (For the C64 replace 'YHCTI' with 'YRIAH').



THE POWER

Demonware • Amiga, ST, C64

This curious puzzler has had a mixed reception, but if you're one of its fans, you might find a use for these level passwords:

- 2 - LEVEL2 (ho ho)
- 3 - VISUAL
- 4 - COWBOY
- 5 - URGENT
- 6 - OOPSUP
- 7 - TOPTEN
- 8 - D14DH7
- 9 - ASOFGH
- 10 - SO LONG
- 11 - SURFIN
- 12 - RACKET
- 13 - BULLIT
- 14 - QRAZZY
- 15 - 36F6FR
- 16 - UNLINK
- 17 - PIXXEL
- 18 - EUROPE
- 19 - NEWTON
- 20 - FREEZE



HELP MA BOAB!

What's that you say? You just can't kill that last end-of-level baddie? Simply can't find the secret room with the crucial power-up? Don't know how to deal with the wrinkly old man with the magic stick? If you've got a problem with a game, there are three things you can do:

- 1 Give up eating, drinking, working and sleeping until you've solved it (and probably give yourself a coronary into the bargain).
- 2 Admit defeat, throw away your computer in disgust, grow a beard and go and live in a cave, throwing rocks at passers-by

occasionally and eating moss to get by in your new life as a complete failure.

- 3 Get some other mug to do it for you. They can be found at:

HELP MA BOAB!,
Games Week,
New Computer Express,
30 Monmouth Street,
Bath BA1 2BW.

State the name of the game and your specific problem, and what it is you're after (a tip, a cheat mode or whatever). If I don't know how to do it, you can bet I'll know someone who does. ■

CHALLENGE GOLF

On-Line • Amiga, ST, PC • £24.99

The recent release of Electronic Arts' brilliant PGA Tour Golf was thought by many to be just about the last word in computer golf games. On-Line clearly disagrees, and they've brought us this low-key, no-licence release which they presumably hope will clear up what's left of the market. Sad to report, though, there's not much chance of that. Despite being loaded with enough options to make even Mrs Thatcher a little bit undecided (1-4 players, any number of computer opponents, skill levels, various types of competition and practice matches, etc etc), *Challenge Golf* is decidedly second division material. The game seems largely to play itself, the player's control inputs having minimal bearing on the actual flight of the ball.

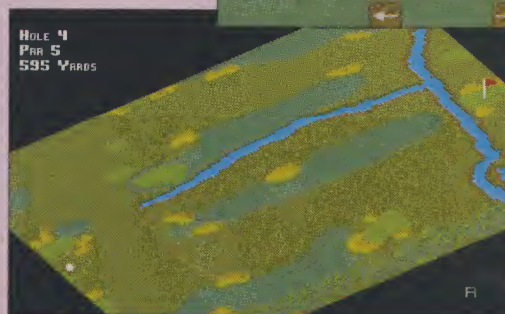
Graphically it's extremely crude, and bugged into the bargain (the 3-D replay, for example, doesn't relate to the actual shot, and sometimes even shows the ball bouncing on water). Soundwise there's very little to get excited about (the 'sound off' option included is a complete waste of code space, or possibly a little programmer's joke) and in general the game just doesn't have the right feel to it. Putting in particular is dreadful, with short putts apt to bounce off the hole (don't ask me why) and come straight back at you, ending up further away than they started.

This game doesn't have anything to recommend it over *PGA Tour* except the price, and if it's price you're concerned with you can buy *World Class Leaderboard* for eight quid. (And get a much better game into the bargain.) Give it a miss.



◀ *Golputt* - The putting sequence shows the primitive graphics at their worst. The large red arrow indicates the slope of the green but has little or no effect on the ball's movement, and the cursor, which would control your aim, is actually totally redundant. The course map in the bottom left-hand corner shows all the water on this hole, which the ball nonetheless seems highly reluctant to fall into.

Golfdrive - You can ► aim the cursor over to the left all you want, when you hit the ball it'll still fly straight down the middle. It makes you wonder why you bother to make the effort at all, and pretty soon, you won't. It's no coincidence that this course (one of the four available) is called 'Negativeland'.



◀ *Golf3d* - This 3D overview of the hole appears after every shot, and shows an action replay of the last hit which doesn't always bear much relation to where the ball actually went.

NEW AGE COMPUTING

For all your Amiga & communication needs!

BULK DISKS

Benchmark 3.5" Sony Bulk with labels & replacement guarantee.

25 £16.00	50 £28.00	100 £40.00	500 £162
---------------------	---------------------	----------------------	--------------------

PREFORMATTED

As above, but fully Amiga formatted.

25 £17.25	50 £30.50	100 £45.00	500 £185
---------------------	---------------------	----------------------	--------------------

3.5" DISK STORAGE

40 Capacity lockable box	£4.50
80 Capacity lockable box	£5.50

POSSO

150 Capacity disk drawer	£17.00
- lock for above Posso	£6.50

A500 0.5 MEG MEMORY UPGRADE

Can be made into 1 Meg CHIP RAM.

With Clock Just £26.99

SLIMLINE 3.5" AMIGA DRIVES

With throughport & switch

£65.00

MOUNTAIN BREEZE COMPUTER

AIR IONISERS

Freshen the air you breath!

Only £25.00

REPLACEMENT MICE

280 dpi - mouse mat & holder included

Naksha Mouse.....£23.00

Naksha + Operation Stealth ..£26.00

TURBO 68000 7/14 MHz

SWITCHABLE CHIP

Complete with board, manual and software

Only £39.99

NOTE: Revision 5.2 Amigas above only

COMPUTER LYNX - The Amiga disk magazine

The action packed magazine ON A DISK! With demos, news, interviews, reviews and more! WE CAN'T EXPLAIN IT ALL HERE - SEND FOR A TASTER

Exclusive from NEW AGE only £1.50

MOUSE MATS

VINYL.....£1.99	FOAM.....£2.99
-----------------	----------------

PRINTER STANDS

UNIVERSAL.....£6.99	WIRE.....£9.99
---------------------	----------------

DUST COVERS

A500.....£4.50	STAR LC-10.....£5.50
----------------	----------------------

PRINTER RIBBONS

Star LC-10.....£3.00	Star LC24-10/24-200 ..£4.50
Epson MX/FX80/800 ..£3.50	Epson LX80/86.....£3.00
Panasonic KXP1124...£4.75	KXP 1080/1081/1180..£4.50

Call for your printer NOW!

TELEPHONES & FAXES

ALL APPROVED FOR TELEPHONE LINE CONNECTION

BRITISH TELECOM

FREELANCE II CORDLESS TELEPHONE

Pager.....£89.95	Intercom.....£119.95
------------------	----------------------

PANASONIC

KXT 1446.....£80	KXT 2440.....£130
KXT 1447.....£100	KXT 2445.....£165

SAMSUNG - FAX

SF1000.....£340	SF2300.....£620
SF1100.....£450	SF2300M.....£775

GPT

REFURBISHED CORDLESS PHONE (T1042)
With 6 months guarantee. Normally £105

Special £50

POSTAGE AND PACKING: Please add 50p for orders under £2.00,
£1.50 for orders up to £10, and £2.00 for all orders above.

ALL PRICES INCLUDE V.A.T. Payments payable to "NEW AGE COMPUTING"

Dept NCE, 187 Perrysfield Road, Cheshunt, Herts, EN8 0TL
Telephone (0992) 465366 / (0831) 820097. Fax: (0992) 450009

EASILY LED PRINTING



• Light emitting diodes give the Okilaser Printer its high quality output.

PRODUCT: Okilaser Page Printer
FROM: Oki Electric Industry Co Ltd
CONTACT: 0800 525585

When is a laser printer not a laser printer? When it's an Okilaser Page Printer. The Okilaser Page Printers 400 and 800 are not actually laser printers – they use a technique known as LED technology to produce print outs (see box below).

An average user would not notice the difference – they look like laser printers, they are set up like laser printers and, most importantly, they produce print quality virtually indistinguishable from laser printers. Indeed, the results we achieved from the review machine, the lower specification Okilaser 400, were very good. Small fonts printed crisp and clear while bold fonts were sharp and well-defined. Only some of the finer fonts, when italicised, showed signs of becoming bitmapped.

SETTING UP

If you know what you are doing, setting up one of the printers will only take a few minutes. If, however, you need to refer to the manual, it will take a while longer,

Pitch	Point Size	Stroke Weight	Typeface	Print Sample
10	12	Medium	39	0123456789ABCDEFabcdef ÅÊÜ äëü Å
10	12	Bold	39	0123456789ABCDEFabcdef ÅÊÜ äëü Å
10	12	Medium	39	0123456789ABCDEFabcdef ÅÊÜ äëü Å
10	12	Light	39	0123456789ABCDEFabcdef ÅÊÜ äëü Å
16.66	8.5	Medium	39	0123456789ABCDEFabcdef ÅÊÜ äëü Å
Prop(B)	14.4	Bold	1	0123456789ABCDEFabcdef [US ASCII font]
Prop(F)	14.4	Bold	1	0123456789ABCDEFabcdef ÅÊÜ äëü Å
Prop(B)	10	Medium	1	0123456789ABCDEFabcdef [US ASCII font]
Prop(B)	10	Bold	1	0123456789ABCDEFabcdef [US ASCII font]
Prop(B)	10	Medium	1	0123456789ABCDEFabcdef [US ASCII font]
Prop Comp	10	Medium	1	0123456789ABCDEFabcdef [US ASCII font]
Prop Comp	10	Bold	1	0123456789ABCDEFabcdef [US ASCII font]
Prop Comp	10	Medium	1	0123456789ABCDEFabcdef [US ASCII font]
Prop(F)	10	Medium	39	0123456789ABCDEFabcdef ÅÊÜ äëü Å
Prop(F)	10	Bold	39	0123456789ABCDEFabcdef ÅÊÜ äëü Å
Prop(F)	10	Medium	39	0123456789ABCDEFabcdef ÅÊÜ äëü Å
Prop(B)	8	Medium	1	0123456789ABCDEFabcdef [US ASCII font]
Prop(B)	8	Light	1	0123456789ABCDEFabcdef [US ASCII font]
Prop Comp	8	Medium	1	0123456789ABCDEFabcdef [US ASCII font]
Prop(F)	8	Medium	39	0123456789ABCDEFabcdef ÅÊÜ äëü Å

• With four fonts, bold, italics and five size choices the Okilaser printers offer a total of 25 font options.

SPECIFICATIONS

- Print speed 4 pages per min (8ppm for the 800)
- Resolution 300x300dpi
- Number of Fonts 35
- Interface Parallel and serial
- Paper capacity 200 sheets
- Toner life 2,500 sheets
- RAM 512K up to 2.5Mb (4.5Mb for the 800)
- Price £899 (£1,399)

The Okilaser Page Printer sounds like a laser printer, prints like a laser printer, but is definitely not a laser printer. Dave Golder puts the machine to the test to see how it performs.

SO HOW DOES A LED PRINTER WORK?

With a laser printer the laser scans to and fro across the drum, repeatedly switching on and off depending on whether the area to be printed should be black or white. The image from the drum is then transferred to paper.

A LED (Light Emitting Diode) printer has a line of diodes, 300 per inch, which remain in a fixed position. As the printer drum rolls beneath them they will switch on and off in a series of different patterns; there will be 300 separate patterns

for every inch of printed area (this gives a print resolution of 300 dots per square inch). This process etches the image to be printed into the toner on the drum, and the image is transferred on to paper in the same way as a laser printer.

since the manual is filled with very helpful-looking diagrams that are not, in fact, that useful. For example, one diagram shows how to insert the image drum, but it is near impossible to tell which way around, or even which side up, the drum should be placed in.

Once switched on the printer takes less than a minute to warm up and, provided you have connected it up to the computer correctly – again something not very clearly explained in the manual – you are ready to print.

Both the 400 and the 800 are HP LaserJet Series II compatible, so if your software does not have an Okilaser printer driver (which is very probable) you should encounter few compatibility problems as most software packages that require print outs have HP Series II drivers.

The Okilaser printers have 25 resident fonts which, at the price, is a very good selection. There are four basic fonts types available – Courier, Helvetica, Times Roman and LN Printer, which can then be made bold or italicised and used in five different sizes.

More fonts are available with 'font cards' which can be obtained separately for £89 each. These are slightly smaller than credit cards and slot into an opening in the side of the printer. Useful, but a bit expensive.

SLOW AND SHORT LIVED

The print speed on the Okilaser 400 is relatively slow. Officially it is four pages a minute, which is about the slowest you will get on a laser printer and many

machines at comparable prices offer six pages per minute. The Okilaser 800 offers a maximum of eight pages a minute, but will cost you an extra £500.

The toner also has a short life printing only 2,500 sheets – about the half the average for most laser printers. But its toner cartridges, priced at around £19, are excellent value – the average price is around £90.

A drawback the Okilaser unfortunately shares with many laser printers is that it only comes with half a megabyte of RAM as standard; this makes the printing of complex pages created with desktop packages almost impossible. Although upgrades are readily available (from £299 for a 1Mb expansion) it seems strange that the company cannot offer a model with at least 1.5Mb of RAM.

Despite these drawbacks, the Okilaser 400 and Okilaser 800 are very good value for money, offering a competitive alternative to standard laser printers. ■

THE FINAL PRINT-OUT

FOR

- ▲ Very sharp, clear print out.
- ▲ A wide selection of fonts for the price.
- ▲ The LED system of printing means there are fewer moving parts to wear out or break down.
- ▲ HP LaserJet series II compatible.
- ▲ Loading paper is simple.

AGAINST

- ▼ Paper tends to get slightly curled.
- ▼ LCD screen at an angle where it tends to catch the light.
- ▼ Relatively slow print speed.
- ▼ Supplied with only half a megabyte of RAM which makes advanced DTP difficult.

COST

Okilaser 400 –£899, Okilaser 800 £1,399.

THE COMPETITION

Other LED printers on the market include:

Printer	Price	Contact
Dataproducts LZR2450	£11,300	0734 884777
Fujitsu RX7100	£1,095	081-573 4444
Fujitsu RX7100M2	£1,670	081-573 4444
Fujitsu RX7100PS	£1,895	081-573 4444
GCC BLP 11	£1,885	081-569 4030
Printonix L2324	£11,200	0734 441055

**40Mb
Hard
Drive
£400.00**

**AMIGA
& PC**

MAINTENANCE

**ALL PD
AVAILABLE AT
£1
CALL FOR
CATALOGUE**

**SCREEN GEMS
£370**

**BLANK
DISKS
FROM 30p**

**Phone for
latest prices
on Amiga
& PC
Hardware**

**STAR LC10
£159**

**Up to 20%
off
RRP on
SOFTWARE**

**MG Computer Services, Dept NCE,
74 Roach Road,
Sheffield, S Yorks, S11 8UB
TEL: 0742 682612 OR 654318
VAT Reg No. 534 1458 57**

**ALL PRICES INCLUDE VAT,
CARRIAGE FREE ON ORDERS OVER £20**

RICHARDS DEVELOPMENTS

1/2 Meg Amiga upgrades no clock includes on/off switch.....£19.95
4D-Ram Version

1/2 Meg Amiga upgrades with clock and switch.....£24.95
4D-Ram Version

★★★★★ **SPECIAL LAUNCH OFFER** ★★★★★★

Amiga 1.5 Meg upgrades fully populated, includes clock,
easy fit runs off Gary Chip, requires 1.3 version.

5 year warranty free 2 Mb demo.

ONLY £69.95 inc VAT

★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★

3.5" Disks DD/DS 100% error free.....1-49.....35p each
49-99.....31p each
100+.....28p each

ALL DISKS INCLUDE FREE LABELS

40 Cap locking disk box 3.5".....£3.99 each
80 Cap locking disk box 3.5".....£4.99 each

Null modem lead for back to back communications.....£3.99 each
Amiga 4 player adaptor lead.....£4.99 each
Joystick extension lead.....£4.99 each
Amiga dust cover.....£2.99 each
Mouse mat top quality.....£1.99 each

**ALL PRICES INCLUDE VAT, POSTAGE AND PACKING IS EXTRA
PLEASE ASK WHEN ORDERING.**

CREDIT CARD HOTLINE - 0602 464188

Cheques/Postal Orders to:

**RICHARDS DEVELOPMENTS, 14 Windmill Way, Kegworth,
Derby DE7 2FA. Please phone first for price of postage.**

ALL PRODUCTS CARRY A FULL 5 YEAR WARRANTY

**Public Domain also available all disks only 99p plus p+p
For full catalogue send £1.00**

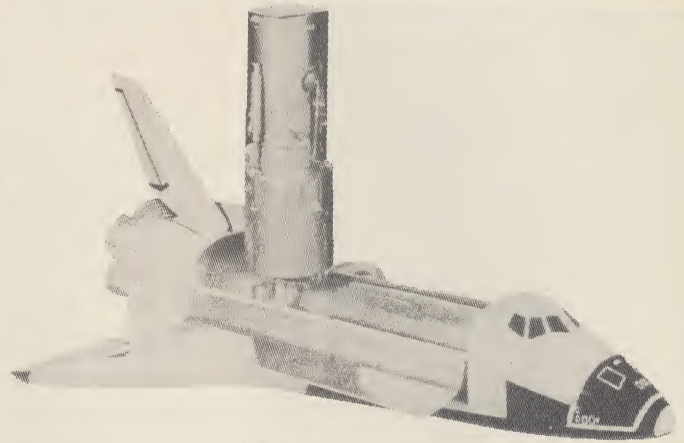
Spasoft Computer Services

Atari 520STFM Discovery Pack.....	£249
Atari 520STE Discovery Extra Pack.....	£269
Atari 520STE Turbo Pack.....	£299
Atari 1040STE Curriculum Pack & Exclusive STE Starter Kit.....	£349
Atari TT030/2 2Mb RAM, 40Mb Hard Disk, Colour Monitor.....	£1999
Atari TT030/8 8Mb RAM, 40Mb Hard Disk, Colour Monitor.....	£2499
Atari Lynx Console & Paperboy Game.....	£99
Atari Portfolio Pocket PC.....	£179
Commodore CDTV & Defender Of The Crown Game.....	£549
CBM Amiga 512k.....	£299
CBM Amiga 1 Meg Screen Gems Pack.....	£359
CBM Amiga 1500 Pack.....	£649
Philips CM8833 MK2 Colour Monitor.....	£249
Sega Mega Drive & Altered Beast Game.....	£139
Sega Game Gear Colour Hand Held.....	£94
Panasonic KXP1124i 24 Pin Printer.....	£299

Phone For Our Trade In Prices. Send SAE For Full Price List.

**Make Cheques/PO's To SPASOFT. Send To: Spasoft (E1),
123 Mason Avenue, Lillington, Lemington Spa, Warwickshire,
CV34 7QF Tel: 0926 413706**

LOST IN SPACE



Far from the public glare, visionaries are developing plans for space habitats and sculptures that will orbit earth and be visible to a global audience. Rik Haynes taps into their underground network of art, science and technology ...

The advent of computer graphics, fax, interactive video, teleconferencing, holography, hypermedia and the proliferation of other computer technologies have spawned a new breed of high-tech artists. All share a common disillusionment with the use of science and technology for weapons by turning the tools of Big Brother to their own advantage. These people are contemptuous of television, enthralled by virtual reality.

Possibly the most far-reaching of these artists are the pioneers who wish to break through the boundaries of crowded small-scale art galleries by invading the outer reaches of space. These people look on space as an exciting canvas for the arts of the future.

FORUM FOR HIGH-TECH ARTISTS

Information must have a means of dissemination. Reporting on and nurturing this constant innovation drive is the responsibility of the International Society for the Arts, Sciences and Technology (ISAST). This is a non-profit organisation dedicated to promoting the use of contemporary science and technology in the arts. Associate membership in ISAST is open to professional artists, collectors, scientists, engineers and others interested in modern arts and sciences. Membership brings them plenty of benefits and a subscription to *Leonardo*, the bi-monthly journal of art, science and technology.

"This is the foremost international forum for artists and others interested in the application of contemporary science and technology to the visual arts and music," says a ISAST spokesperson.

"... space exploration has inspired an extraordinary variety of artistic activities"

Leonardo features articles written by artists about their own work, as well as discussions of new concepts, materials and techniques.

In the past year ISAST has begun sponsoring a program that brings *Leonardo* authors, editors and prize winners to local arts institutions for speaking engagements. Apart from the regular issues of *Leonardo*, ISAST occasionally publishes special issues of the journal and theme packs with reprinted articles.

ISAST is now looking forward to covering the increasing involvement of artists in the greatest adventure of our time - space exploration. Having already

flown artworks on the US Space Shuttle and the Soviet Mir Space Station, pioneer artists continue to explore the possibility by visualising extra terrestrial landscapes, developing plans for space habitats, creating large earthworks intended to be viewed from space, and planning sculptures that will orbit earth and be visible to a global audience.

According to Roger Malina, Executive Editor of *Leonardo*, "Artists have accompanied explorers on many of the great voyages of scientific and geographic discovery. So it should be no surprise, that, in the last decade, space exploration has inspired an extraordinary variety of artistic activities."

One of ISAST's special theme pack includes articles on a clay sculpture series 'Unidentified Intergalactic Rovers', satellite art and a call for a Space Ethics Committee. *Space Art News* is an occasional publication of ISAST in collaboration with the International

CONNECTIVITY

Art and Interactive Telecommunications merge on the Fine Art, Science and Technology database (FAST) which includes art and music related bulletin boards, Space Art News, fine art forum, bibliographies and abstracts, calendars of events, job listings and a holography hotline. Started in 1988, FAST is updated weekly and the current issue is also available on MS-DOS compatible disk for \$25.

FAST is accessible on the MCI bulletin board on 0101 202 8333 8484 and at ACEN on the WELL (0101 415 332 6106). You can also send E-Mail via Usenet, accessible via CIX and other boards, at: LEONARDO@WELL.UU.NET.



• While the floating adverts featured in *Bladerunner*, may still be some way off, organisations like ISAST are at least providing a forum to forge the mix of science and art necessary to make images literally 'out of this world'





Academy of Astronautics. This newsletter, which is also electronically published in an on-line bulletin board, covers fine art which makes use of new techniques, materials or sensory experiences generated as by-products of space exploration.

STAR GAZING

The Sun Drawing Project and L'Astrolabe are typical of the projects revealed in *Space Art News*.

Supported by the National Science Foundation in America, the VLA Sun Drawing Project is a monumental-scale work of art by Janet Saad-Cook. Located at the national Radio Astronomy Observatory's Very Large Array (VLA) near Socorro, New Mexico, Sun Dawning is a moving mural of light that combines art with the key principles of astronomy, optics and space technology.

While L'Astrolabe is a large outdoor sculpture by Alain Le Boucher, created earlier this year for the exhibit 'Les artistes et la Lumiere' at the Centre National d'Art Contemporain in France. This sculpture is interactive, the viewer is able to dial-up various images of the night sky on TV monitors. George Dyens also made a 30' x 30' installation for the same exhibit entitled Big Bang II which included holograms, optical fibres and electro-acoustic music.

Conferences regarding space art are regularly occurring throughout the world from London to Beijing

Conferences and communications regarding space art are regularly occurring throughout the world, from London to Beijing.

The International Academy of Astronautics is currently organising a session on Space Architecture and Space Settlements. At the Round Table on Art in Space, the main topic of discussion was ethical and concerned public art issues arising from orbiting sculptures visible from the ground. Several architects involved in the Eiffel competition were among the participants and a French transcript is available. The International Design for Extreme Environments Association is to be formed later in the year to cover all habitations in extreme environments including orbiting space stations and future outposts on the Moon, Mars and other planets.

Just in case of a potential intergalactic conference, Hans Freudenthal has constructed a language to communicate with members of an alien society.

For some, the time for talk and planning is over. Japanese artist Cao Guo Quiang has created an art-

work titled '45.5 Meteorite Craters made by beings on their 45.5 million year old planet'. The work is located in Pourrieres, France and was created using 50Kg of gunpowder, dried grasses and paper last summer. The site, some 10,000 m², as viewed from aerial photographs, shows a large field pock-marked with craters.

Contemporary American artist James Turrell is working on a gigantic earthwork at Roden Crater in Arizona. This volcanic crater is being modified through the building of chambers and passages, and the smoothing and altering of natural topography.

With the International Space Year due to begin in less than six months time, *Leonardo* is planning a special issue, The Artist and Space Exploration, highlighting the work of artists, scholars, scientists and engineers in this exciting field.

Additionally, artist Arthur Woods and aerospace engineer Marco Bernasconi are already working on a remarkable scheme which could spark a new age of art. The Orbiting Unification Ring Satellite Project is an ambitious series of space sculptures. The first is due to be launched next year by the Soviet space agency. Ironical, when you consider similar technology would also be used to launch a nuclear missile strike.

Space really is the final frontier. Artists are boldly going where no-one has gone before.

SCIENCE AND ART

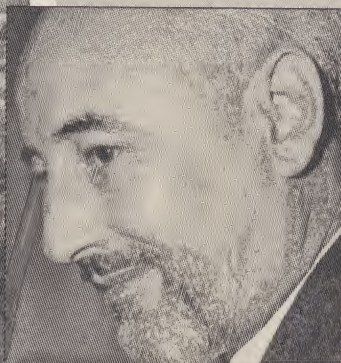
Our culture has produced so few people like Leonardo da Vinci who found it natural to live in a world where science and art coexist. *Leonardo* is the journal for the International Society for the Arts, Sciences and Technology (tel 0101 415 845 8298)

This publication is probably the only attempt to provide a unified perspective on the worlds of art, science and technology. Readership evolved from a small, but faithful niche of artists, scientists and engineers into the vanguard of the new arts and aesthetics that have resulted from the extraordinary technologies of our time. For the past 23 years, *Leonardo* has published articles on such subjects as space art, robotic choreography and musical interface with the human nervous system.

This year, *Leonardo* has gone from a quarterly to bimonthly publication and has added a special issue on music and a new gateway section that introduces people, events and emerging technologies that are shaping the direction of new art. ■

For further information on The International Society of the Arts, Sciences and Technology and other related projects write to: ISAST, 1442A Walnut Street, Berkeley, California 94709, USA.

THE ARTISTIC ROCKETEER AND THE ROBERT MAXWELL



• Frank J. Malina, developer of *Leonardo* – the first journal devoted to science, technology and the arts.

Frank Malina, founder of *Leonardo*, was an American scientist who, after receiving his PhD from the California Institute of Technology in 1936, directed the Wac Corporal program that put the first rocket beyond the earth's atmosphere. Malina also co-founded the Jet Propulsion Laboratory and Aerojet General Corporation. He was an active participant in rocket science development in the period leading up to and during World War II.

As an artist, Malina was highly versatile and experimental. He quickly moved from traditional media to string constructions and finally to the development of systems for kinetic painting.

Malina was impressed with publisher Robert Maxwell after he took it upon himself to find and liberate warehouses full of German scientific journals that had accrued during the Nazi regime in isolation from the world's scientific communities. Together, they formed *Leonardo* – the first journal devoted to science, technology and the arts.

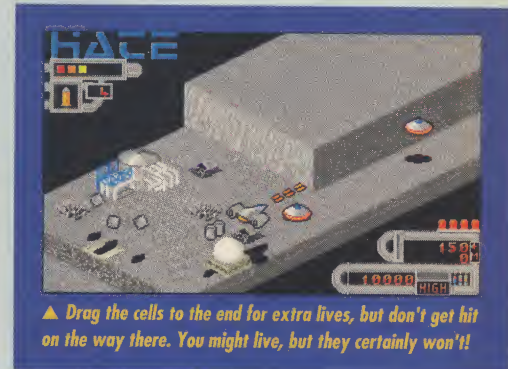
When Malina died in 1981, *Leonardo* became the responsibility of his son, Roger, an astrophysicist at the University of California at Berkeley. Roger Malina is married to one of Robert Maxwell's daughters.

DON'T MISS YOUR CHANCE!

Special Amiga/ST offer – a complete game!



It seems that, despite all our warnings and best efforts to increase availability, some *Express* readers still missed out on last week's cracking special issue. Besides all the latest news and reviews for your machine, it featured, as you're no doubt aware, a full, brutally addictive game for the Amiga and ST called **HATE**.



● Inside the magazine, just to rub things in, we featured a full, illustrated playing guide, complete with tips, short cuts and even a special cheat for those really tricky moments.

● If you're an Amiga or ST owner and you missed out, you must be pig sick, eh?

● Well, you'll be glad to know we have kept just 2,500 copies of this special issue for those regular readers who missed out. To order a copy, fill in the form below and send with it a cheque or postal order made payable to Future Publishing Limited for just £1.95 to: New Computer Express Special Offer, Future Publishing, Freepost, The Old Barn, Somerton, Somerset TA11 7BR.

● There are only 2,500 copies available. You shouldn't have a problem getting hold of yours, provided you order now. Leave it any longer and you'll have missed your chance altogether.

SPECIAL EXPRESS ORDER FORM

NAME

ADDRESS

POSTCODE

PHONE NUMBER

Please send me a copy of *New Computer Express* special issue 138, featuring the complete version of **HATE** on a dual Amiga/ST disk.

I understand that if no copies are left you will return my cheque/postal order.

WANTED!

YOUR HONEST OPINION OF *NEW COMPUTER EXPRESS* – SO WE CAN MAKE IT EVEN BETTER!

This questionnaire helps us monitor what you, our readers, think of **NEW COMPUTER EXPRESS** and keep it tailored to your wishes. Please don't pass up this opportunity to influence the future of your magazine. We really *do* want to know your honest views!

1. Which equipment do you own?

- ☐ Amiga ☐ Atari ST ☐ Archimedes ☐ PC
☐ Spectrum ☐ Commodore C64 or C128
☐ Amstrad CPC ☐ Spectrum ☐ Other
☐ Sega console ☐ Nintendo console
☐ Monitor ☐ Printer

2. How do you rate **NEW COMPUTER EXPRESS** in terms of value for money?

- ☐ Excellent value
☐ Good value
☐ Reasonable value
☐ Poor value
☐ Rip-off

Please rate the following question out of 10:

3. How much does the cover of this issue appeal to you? /10

4. How much does this issue appeal to you overall? /10

5. How does it compare with previous issues you've seen?

- ☐ Much better
☐ Slightly better
☐ The same standard
☐ Slightly worse
☐ Much worse

6. Please rate out of 10 this and any other computer magazines you read regularly:

NEW COMPUTER EXPRESS /10
..... /10
..... /10
..... /10

7. What is it you like *most*; and then *least* about this issue?

I most like

And I least like

● You don't need a stamp.

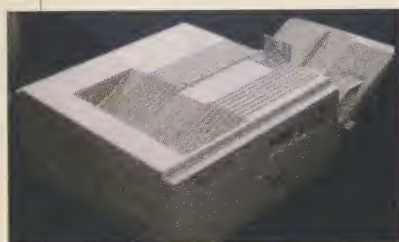
Simply return to:– Reader Survey, **NEW COMPUTER EXPRESS**, Future Publishing, Freepost, Bath, Avon BA1 1XY.

COMPETITION

WIN! WIN! WIN! WIN! WIN!

WIN A £1,200 LASER PRINTER

So you need your output to be as good as your input? You had better read on since the answer to your needs could be the Acer LP76 laser printer and it's up for grabs!



• Perfect printing could be yours if you win the Acer LP76 laser printer worth £1,200.

If you want to improve your printed output by light years and join the laser revolution, put on your thinking cap. If you can answer five questions this week and five more in *Express* 140, you could be the one with the prettiest print. The LP76 comes from UK Home Computers and is the same model that came out tops in a recent *Express* review.

THE LASER

The Acer LP76 is a six page a minute laser printer that emulates the industry standard HP Laserjet II. It can handle A4 paper and as a bonus the LP76 in the *Express* competition will be supplied, installed and ready to go with toner, drum, an extra memory card and a second sheet feeder to allow you to choose which paper you use without having to change the paper tray. In other words, you can have a good quality letterheaded paper in one tray for correspondence and plain paper in the other tray for the more mundane jobs. Alternatively, you could use two colours or two qualities of paper in each of the trays.

To make sure that the LP76 in the competition is ready for anything, we've added a memory card to take the memory up from the standard 512K to 1.5Mb. Applications like desktop publishing take

gargantuan amounts of memory in a laser printer and the more complicated the page, the more memory and processing power the printer will need to output it.

If you don't get the printer in the competition, don't fret. UK Home Computers have ripped up the recommended retail price and while they've still a few in stock will let you walk away with a £1,200 package printer and sheet feeder for only £646.50.

In the meantime, answer the questions and keep them somewhere safe. You'll need to send the two weeks' answers in together if you want to stand a chance of walking away with this whizzy laser. When you've answered both weeks' questions, write the answers on a postcard and send them to: *Express* Laser Compo, 29 Monmouth Street, Bath BA1 2BW to arrive no later than 3 August. ■

AND HERE ARE THOSE QUESTIONS...

- 1) What does 'laser' stand for?
 - a) The Queen (and God bless all who sail in her ...)
 - b) Light Amplification by Stimulated Emission of Radiation
 - c) Look At Beef Sausage Eaters on Radio
 - d) Light and Shade Engineered Raw
- 2) Which of the following isn't a kind of printer?
 - a) Daisywheel
 - b) Inkjet
 - c) Qualcast
 - d) Laser
- 3) What is the resolution of a typical laser printer?
 - a) 300x300 DPI
 - b) 75x75 DPI
 - c) 1280x1280 DPI
 - d) 1200x1200 DPI
- 4) What company sells laser printers at under £650?
 - a) Arnold Layne Washing Lines Ltd
 - b) Blackpool Tower Company
 - c) UK Home Computers
 - d) The National Motor Museum

MAKE SURE YOU GET A COPY OF NEXT WEEK'S EXPRESS

Complete this form and hand it to your newsagent

TO THE NEWSAGENT: Please reserve me copy/copies of *New Computer Express* every week, beginning with issue 140, out on 13 July.

NAME

ADDRESS

TELEPHONE NUMBER

To the newsagent: *New Computer Express* is published by Future Publishing and is available from your local wholesaler. Send back all your Future shop save coupons for entry in a free draw to: Kate Hodges, Future Publishing, 30 Monmouth Street, Bath BA1 2BW.

COMING NEXT THURSDAY

Future floppies

With the 4Mb disk just around the corner *Express* takes a look at how they're made

Mini monitors

How to connect a handheld telly to your machine

Yo Bro!

Brothers bargain new 9 and 24 pin printers put to the test

PLUS

- Hot news
- Front End
- Games Week
- Whole Wired World
- Tech Tips
- Circuit City
- Express On-line
- Express Mail
- The PD Column
- Programming
- Columns for: Amiga, Archimedes, CPC, C64, Macintosh, PC, Spectrum and ST

AND
PART 2 OF OUR
LASER COMPO!



EDITOR • Andy Storer
NEWS EDITOR • Tim Smith
REVIEWS/TECHNICAL EDITOR • Keith Pomfret
PRODUCTION EDITOR • Julie Tolley
ART EDITOR • Amanda Cook
STAFF WRITER • Dave Golder • Tim Howell
GAMES REVIEWER • Stuart Campbell

CONTRIBUTORS:

• Steve Gold • Jason Holborn
• Frank O'Connor • Haydn Fitz-Williams
• Mary Branscombe • Robin Alway
• Andrew Roberts • Cliff Ramshaw
• Andy Hutchinson • Ian Wrigley
• Rod Lawton • Paul Rigby

CIRCULATION DIRECTOR • Sue Hartley

AD MANAGER • Helen Kirkhope
SENIOR AD EXECUTIVE • Cheryl Beesley
AD EXECUTIVES • Tim Partridge
• Siobhan Kennedy-Coyne
AD PRODUCTION • Frances Wasem
AD TYPESETTING • Terry Mackereth
PRODUCTION TECHNICIANS: Simon Windsor
• Chris Stocker • Jerome Clough
PUBLISHER • Steve Carey
ABC audited circulation July-December
1990: 20,204 copies per week

We regret we cannot enter into any personal correspondence. Technical enquiries should be addressed to Tech Tips at the address below. While every care is taken in the preparation of *New Computer Express*, Future Publishing cannot be held responsible for the consequences of any errors that may occur.

• Subscriptions: The Old Barn, Somerset, Somerset (0458) 74011
• Printed by Redwood Press, Melksham, Wilts
• Distributed in UK and Eire by Future Publishing (0225 442244), rest of world by Comag (0895 444055)
© Future Publishing Ltd 1991
30 Monmouth Street, Bath BA1 2BW

CONTACTS

Tel: 0225 442244 Fax: 482018
E-mail: ASPECTS @ 061 792 0260
CIX @ astorer
GOLD @ 84:TXT152
PRESTEL @ 011112623

'Your guarantee of value'

This magazine comes from Future Publishing, a company founded just six years ago, but which now sells more computer magazines than any other publisher in Britain. We offer:

Better advice. Our titles are packed with tips, suggestions and explanatory features, written by the best in the business.

Stronger reviews. We have a cast-iron policy of editorial independence, and our reviews give clear buying recommendations.

Clearer design. You need solid information fast. So our designers highlight key elements by using charts, diagrams, summary boxes, annotated photographs, etc.

More reader interaction. We draw strongly on readers' contributions, resulting in the liveliest letters pages and the best reader tips. Buying one of our magazines is like joining a nationwide user group.

Better value for money. More pages, better quality: magazines you can trust.

future
PUBLISHING

Home of Britain's finest computer magazines.

New Computer Express
Amiga Format • ST Format
Amiga Power • Amiga Shopper
PC Plus • PC Answers • 8000 Plus
Amstrad Action • Your Sinclair
Commodore Format • Sega Power

192 CPS DRAFT**9 PIN****SEIKOSHA SP-1900**

- Best Cost Performance
- 80 Column Print Width
- 192cps Draft @12cpi (Elite)
- 48cps NLQ @12cpi (Elite)
- 1K Printer Buffer
- Epson FX850 & IBM Pro II Compatible
- Pull Tractor & Bottom Feed
- Graphics Resolution - 144x72dpi
- Parallel Centronics Interface
- Paper Parking As Standard
- FREE Starter Kit

RRP £210.33
 STARTER KIT £29.95
TOTAL RRP: £240.28
 SAVING: £93.40

REF: PRI 8190

£125
 +VAT = £146.88

SILICA PRICE: £146.88**192 CPS DRAFT****9 PIN****240 CPS DRAFT****9 PIN****SEIKOSHA SP-2000**

- 80 Column Print Width
- 192cps Draft @12cpi (Elite)
- 48cps NLQ @12cpi (Elite)
- Large 21K Buffer
- Pull Tractor & Bottom Feed
- Graphics Resolution - 144x72dpi
- Paper Parking As Standard
- FREE Starter Kit

RRP £233.83
 STARTER KIT £29.95
TOTAL RRP: £263.78
 SAVING: £100.45

REF: PRI 8200

£139
 +VAT = £163.33

SILICA PRICE: £163.33**SEIKOSHA SP-2415**

- Good Cost Performance
- 136 Column Print Width
- 240cps Draft @12cpi (Elite)
- 50cps NLQ @12cpi (Elite)
- Tractor & Bottom Feed
- Graphics Resolution - 240x144dpi
- Paper Parking As Standard
- FREE Starter Kit

RRP £376.00
 STARTER KIT £29.95
TOTAL RRP: £405.95
 SAVING: £125.12

REF: PRI 8215

£239
 +VAT = £280.83

SILICA PRICE: £280.83**NEW LOW PRICES!****ON SEIKOSHA DOT MATRIX****PRINTERS**

Silica Systems are pleased to recommend Seikosha printers at specially low promotional prices. The Seikosha range are built to exacting standards by a company that is used to manufacturing high quality precision products. In fact, you may find that you are already wearing one of these on your wrist when we tell you that Seikosha are part of the massive Seiko group (with a turnover of £6 billion and over 18,000 staff!).

When you buy a Seikosha printer from Silica, we will give you a Silica Printer Starter Kit (worth £29.95) FREE OF CHARGE to make sure you get off to a flying start with your new printer. For further information on the Seikosha range, complete and return the coupon below. Or, if you can't wait to get your hands on a new low priced Seikosha printer, telephone our sales hotline, 081-309 1111 now to place your order.

• FREE DELIVERY

Next day - anywhere in the UK mainland

• FREE STARTER KIT

Worth £29.95 with every Seikosha printer.

• FREE HELPLINE

Technical helpline open during office hours.

• 1 YR WARRANTY

With every Seikosha printer from Silica.

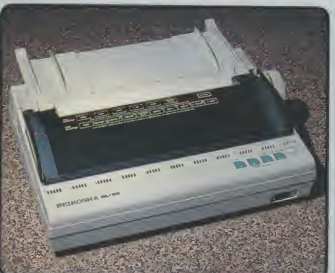
FREE! STARTER KIT

Every Seikosha printer from Silica, comes complete with the Silica Printer Starter Kit FREE OF CHARGE, including everything you need to get up and running with your new printer immediately.

- 3 1/2" Dual Format Disk with Amiga & ST Printer Drivers
- 1.8 Metre Parallel Printer Cable
- 200 Sheets of High Quality Continuous Paper
- 200 Continuous Address Labels on Tractor Feed
- 5 Continuous Envelopes on Tractor Feed

If you already own a printer, and would like a Silica Printer Starter Kit, you may order one for the Silica price of only £24.95 - £5 off RRP (ref: KIT 5000).

NORMAL RRP
£29.95

**240 CPS DRAFT 24 PIN****144 CPS DRAFT 24 PIN****324 CPS DRAFT 24 PIN****277 CPS DRAFT 24 PIN****SEIKOSHA SL-92**

- 80 Column Print Width
- 240cps Draft @12cpi (Elite)
- 60cps NLQ @12cpi (Elite)
- Large 44K Buffer
- Pull Tractor & Bottom Feed
- Graphics Resolution - 360x360dpi
- Paper Parking As Standard
- FREE Starter Kit

RRP £393.63
 STARTER KIT £29.95
TOTAL RRP: £423.58
 SAVING: £189.75

REF: PRI 8292

£199
 +VAT = £233.83

SILICA PRICE: £233.83**SEIKOSHA LT-20**

- Worlds First DM 'Notebook' Printer
- 80 Column Print Width
- 144cps Draft @12cpi (Elite)
- 60cps NLQ @12cpi (Elite)
- Built-in Cut Sheet Feeder
- Graphics Resolution - 380x180dpi
- Parallel Centronics Interface
- FREE Starter Kit

RRP £433.58
 STARTER KIT £29.95
TOTAL RRP: £463.53
 SAVING: £112.12

REF: PRI 8820

£299
 +VAT = £351.33

SILICA PRICE: £351.33**SEIKOSHA SL-210**

- 80 Column Print Width
- 324cps Draft @12cpi (Elite)
- 108cps NLQ @12cpi (Elite)
- 5K Printer Buffer
- 2 Bin Cut Sheet Feeder
- Graphics Resolution - 360x360dpi
- Plug-In Function Cards
- FREE Starter Kit

RRP £703.83
 STARTER KIT £29.95
TOTAL RRP: £733.78
 SAVING: £264.95

REF: PRI 8321

£399
 +VAT = £468.83

SILICA PRICE: £468.83**SEIKOSHA SL-230**

- 136 Column Print Width
- 277cps Draft @12cpi (Elite)
- 92cps NLQ @12cpi (Elite)
- 9 Fonts As Standard
- 2 Bin Cut Sheet Feeder
- Graphics Resolution - 360x360dpi
- Plug-In Function Cards
- FREE Starter Kit

RRP £821.33
 STARTER KIT £29.95
TOTAL RRP: £851.28
 SAVING: £264.95

REF: PRI 8423

£499
 +VAT = £586.33

SILICA PRICE: £586.33**SILICA SYSTEMS OFFER YOU**

- **FREE OVERNIGHT COURIER DELIVERY:** On all hardware orders shipped in the UK.
- **TECHNICAL SUPPORT HELPLINE:** Team of PC technical experts at your service.
- **PRICE MATCH:** We normally match competitors on a "Same product - Same price" basis.
- **ESTABLISHED 12 YEARS:** Proven track record in professional computer sales.
- **BUSINESS + EDUCATION + GOVERNMENT:** Volume discounts available for large orders.
- **SHOWROOMS:** Demonstration and training facilities at our London & Sidcup branches.
- **THE FULL STOCK RANGE:** All of your PC requirements from one supplier.
- **FREE CATALOGUES:** Will be mailed to you with offers and software/peripheral details.
- **PAYMENT:** By cash, cheque and all major credit cards.

Before you decide when to buy your new printer, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals or software, or help and advice. And, will the company you buy from contact you with details of new products? At Silica Systems, we ensure that you will have nothing to worry about. We have been established for over 12 years and, with our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now for our latest Free literature and begin to experience the "Silica Systems Service".

MAIL ORDER HOTLINE
081-309 1111

SILICA SYSTEMS



MAIL ORDER: 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX **Tel: 081-309 1111**
 Order Lines Open: Mon-Sat 9:00am-6:00pm No Late Night Opening Fax No: 081-308 0608

LONDON SHOP: 52 Tottenham Court Road, London, W1P 0BA **Tel: 071-580 4000**
 Opening Hours: Mon-Sat 9:30am-6:00pm No Late Night Opening Fax No: 071-323 4737

LONDON SHOP: Selfridges (1st Floor), Oxford Street, London, W1A 1AB **Tel: 071-629 1234**
 Opening Hours: Mon-Sat 9:30am-6:00pm Late Night: Thursday until 8pm Extension: 3914

SIDCUP SHOP: 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX **Tel: 081-302 8811**
 Opening Hours: Mon-Sat 9:00am-5:30pm Late Night: Friday until 7pm Fax No: 081-309 0017

To: Silica Systems, Dept NCE 0791 - 58, 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX

PLEASE SEND FREE SEIKOSHA INFORMATION

Mr/Mrs/Ms: Initials: Surname:

Address:

Postcode:

Tel (Home): Tel (Work):

Company Name (if applicable):

Which computer(s), if any, do you own?

E&OE - Advertised prices and specifications may change - Please return the coupon for the latest information.

TAKE ON THE SQUAD

SCHWARZENEGGER



© 1987 Twentieth Century Fox Film Corp.
All rights reserved. Trademarks owned by
Twentieth Century Fox Film Corporation



**RAMBO
III**



**RUN THE
GAUNTLET**



**Lombard
rally**



MANDARIN



**ONLY
£7.99
EACH**

PLAY THE HITS

HIT NAMES • HIT GAMES • HIT SQUAD

THE HIT SQUAD • P.O. BOX 350 • MANCHESTER M60 2LX